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BLAST FURNACES WITHOUT TYMP AND WITH CONTINUOUS SLAG DISCHARGE.

During the last few years numerous and most important improvements have been introduced in the manufacture of iron and steel; but, strange to say, the construction of the blast-furnace has not been essentially altered for the better. This first and foremost apparatus for the production of iron has indeed been increased to gigantic dimensions; but its real character and principle would seem to have received the highest development of which they were capable. That this appearance was deceptive, experience has proved. We present to the American public herewith an account of a radical improvement in the construction of blast-furnaces, which has actually been tested by nine months' use in Germany, with extraordinary success, and has been recently patented in the United States (Nov. 5, 1867).

The improved blast-furnace has no tymp, no fore-hearth, and no damstone; the hearth is closed in its entire circumference; the slag stands constantly at the same level, and therefore rests quietly in the hearth, and flows off *continually* at that level, through a cast-iron slag-discharge-piece, kept cool with water, and introduced at any given point in the circumference of the hearth. The middle of this slag-discharge-piece lies from six to eight inches below the middle of the tuyeres. The details of its construction may be seen from FIGURES 1, 2, and 3, of the accompanying illustration, and from the following description.

The opening of the slag-discharge is in the centre cylindrical, and widens conically towards either end, but most towards that end which points into the hearth. In order to facilitate the fastening and changing of the discharge-piece, it is provided at the top with a swallow-tailed projection, by the aid of which it may be wedged tight to a plate A, FIGS. 1 and 3, which is attached over the point of the hearth selected for the slag-discharge, and is kept cool with water. The plate A has also, at either side of the slag-discharge-piece, hooks, *i*, *i*, without which an iron bar, *k*, is laid, to fasten the slag-discharge-piece. The rear side of the slag-discharge-piece is then flush with the inner surface of the hearth, or projects somewhat into the interior; and the intermediate space around the discharge-piece, FIG. 3, *b*, *c*, *d*, *e*, is filled with fire-clay, sand, or earth. Since the end of the slag-discharge-piece reaches into the hearth, and lies therefore as near as possible to the source of heat, it follows that even if a furnace is working badly, it is much easier to make the slag flow in this way than when it is obliged to traverse the long road under the tymp, through the fore-hearth and over the damstone.

FIGS. 1 and 2 represent a blast-furnace, formerly having three tuyeres, to which this improvement has been applied, and which now has four tuyeres. Of course, the same arrangement admits of five, six, seven, or more tuyeres. For the widely-employed, so-called Scotch furnaces, with sheet-iron mantle and seven columns, seven tuyeres would be the most convenient number. This new arrangement does away with the well-known inconveniences of the old one, as will appear from the following summary of its advantages:

1. The slag always flows off at the same level, thus avoiding fluctuation, or oscillations of the slag in the hearth, and consequent increased wear of the latter.

2. The interruptions caused by tapping and by cleaning the slag from the fire-hearth, are entirely avoided. The loss occasioned by such stoppages is found by experience to be twice the work which the furnace would have done in the time covered by the stoppage.

3. Since no stoppage of blast, and hence no cooling, takes place, the blast-furnace thus constructed is able to preserve a higher and more regular temperature.

4. By the abolition of the fire-hearth and damstone, it is possible to transfer the iron discharge to the wall of the hearth, and the opening of it becomes much easier, since it is four or five feet nearer the centre of the furnace.

5. The perfectly closed hearth at once allows a considerable increase of the pressure of the blast, since a blowing out of material is impossible.

6. This possibility of increasing the blast-pressure is important in all cases, and especially where crude coal (as, for instance, in the anthracite furnaces of the country), or dense charges are used. Under these circumstances, the improved furnace will show great gains in the rapidity of successive charges, and consequent increase of production.

7. The number of workmen may be reduced by one-third, and, what is of higher importance, the degree of skill demanded is not so great as in the old furnaces. Fewer tools are required, and no fire-proof materials for repairs.

8. The length of campaigns is indefinitely increased.

Fig. 1.

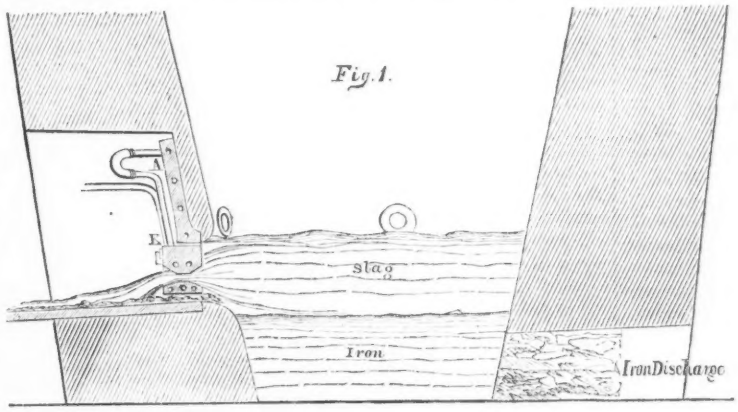


Fig. 2.

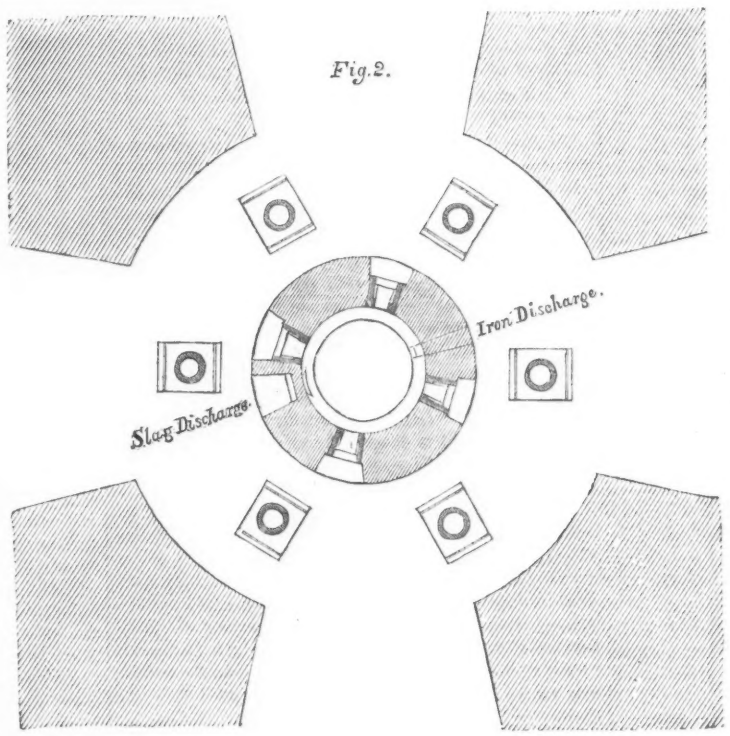
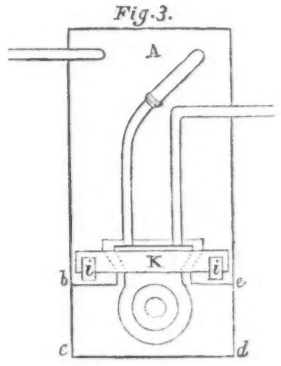


Fig. 3.



The method of running such a furnace is briefly as follows: The slag discharge is not closed before tapping the iron, since the slag stops running of itself, when the iron begins. After tapping the iron the iron-discharge is plugged, and during this time the slag-discharge is stopped with a little sand or earth. The water used in cooling the discharge-piece is reduced to a minimum. The duration of this work is four or five minutes. The full allowable blast-pressure is now applied, until the slag appears at the discharge when the sand or earth is removed, and the workman thrusts a round bar through the opening and the slag-crust behind it, into the liquid slag, and then quickly withdraws it, when the slag flows out in a stream. The flow of slag may be completely regulated by means of the water, cooling the dischage-piece; since by strongly cooling the latter, the slag is "frozen" in the passage, reducing the size of the discharge,—and *vice versa*. During this entire process, *the blast is not interrupted, nor its pressure diminished.* The size of the slag-discharge opening for a blast-furnace depends on the consistency and quantity of the slag. For a large coke-blast furnace with thin slag, an inch and a quarter, and for a tougher, thicker slag, up to two and a half inches are employed.

No more work is done on the furnace until the next tapping for iron; and, above all, THE BLAST DOES NOT REQUIRE TO BE INTERRUPTED FOR AN INSTANT.

When an ordinary blast-furnace works badly, that is, when from lack of the proper slag-mixture or the requisite temperature, the slag cannot be made to flow freely, the fore-hearth is liable to become clogged, rendering it necessary to draw off the slag, through, under, or near one of the tuyeres; but such cases are more easily managed with the new arrangement, since if the slag will not flow throw the aperture of the discharge-piece, it can be drawn off without difficulty through the space *b*, *c*, *d*, *e*, FIG. 3, surrounding the discharge-piece.

This new arrangement may be attached at any time, and in a few hours, to a furnace of the old form, *without interrupting its operation*. To do this, it is only necessary, after tapping, to replace the tymp-plate with the plate A, FIGS. 1 and 3, which is also cooled with water. This plate, with the slag-discharge, must be so placed, that the latter shall lie at least six inches below the middle of the tuyeres, and its rear edge either project into the furnace or be flush with the interior surface. This is not difficult, since an old furnace is ordinarily no longer very thick in the neigborhood of the tymp. The spaces between damstone and former tymp, and around the slag-discharge-piece, are now filled up, and the work goes on regularly, as above described. The distance between the iron and the slag-discharge, and the consequent number of charges between two tappings, are determined by tapping, a few times, earlier than usual.

One old furnace, altered in this way, and two new blast furnaces of this kind, have been running for nine months at the George-Marie works, near Osnabruck, Prussia, producing respectively, the former, forty, and the two latter fifty tons each per day, of any desired quality of iron. The matter is, therefore, already removed from the stage of mere experiment, and the principal iron-masters of Germany are hastening to avail themselves of this welcome improvement.

The inventor of this ingenious and successful construction, HERR FRITZ LURMAN, directing engineer of the Prussian Iron Works at Osnabrück, called the George-Marie Works, has transferred the patent right for America to GEORGE ASMUS, Esq., Mining Engineer, 90 Broadway, Room 17, to whom parties interested may apply.

Original Papers.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING]

PLATINUM.

BY PROF. H. DUSSAUCE.

I.—ORES—DEPOSITS—EXPLOITATION.

A white substance, metallic, in small and heavy grains, generally disseminated in alluvial earths, constitutes the only platinum ore which is found in nature. The deposits of this ore present the greatest analogy with those of native gold; and often both are found side by side in the same earth. Like gold, platinum occurs in the metallic state; but it is always associated with foreign metals, the most important of which is iridium. Some other metals are found also with it, but in very small proportion;—such as palladium, rhodium, osmium, and ruthenium; and more abundantly, iron and copper. The following table will give an idea of the usual composition of these ores:

	Barbacoas.	Pinto River.	Ural
Platinum	84.30	84.34	76.4
Palladium	1.06	1.66	1.4
Rhodium	3.46	3.13	0.3
Iridium	1.46	2.58	4.1
Osmide of iridium	1.03	1.75	0.5
Manganese	—	0.31	—
Iron	5.31	7.52	11.7
Copper	0.74	traces	1.1
Gold	—	—	0.4
Sand and loss	2.64	—	1.4
	100.00	101.29	100.5

The presence of the different metals just named, and the necessity of separating them, has, for a long time, rendered the treatment of platinum one of the most difficult metallurgical operations. If, to the rarity of the ore, and the difficulty of the separation, we add the fact, that the fusion of platinum is but a new discovery, we can understand how, notwithstanding the valuable qualities which recommend it to the chemical industries, this metal has received, until lately, few applications. Within five years there has been a complete change, due to the works of SAINTE-CLAIRE DEVILLE and DEBRAY. Now, not only the fusion of platinum is one of the most simple operations, but we can transform directly, by real metallurgical operations, the ore of platinum into a precious metal for the arts.

The means by which the ore is separated from its gangue, are identical with the methods of washing used for gold; and where this latter is associated with platinum, a simple amalgamation separates it.

It is from this moment that the difficulties begin. The different methods hitherto used—principally that of Wollaston, depend on the insolubility of the osmide of iridium, and the solubility of the platinum in aqua regia. Precipitated from that solution by a convenient reagent, and brought back to the metallic state, the platinum, then in the condition of sponge, is soldered on itself by an energetic pressure and an elevated temperature.

These methods have lost their interest since the researches of SAINTE-CLAIRE DEVILLE and DEBRAY. These researches have given birth to four processes already used in industry. Two of them, conducted in the dry way, transform rapidly (and with an expense not exceeding 10c. or 12c. per pound) the ore of platinum into an alloy of platinum and iridium, in which the first metal is dominant, and which possesses, for many applications, qualities superior to those of the pure metal. Submitted for a few moments to the action of aqua regia, then hammered, this alloy becomes insoluble in this reagent—an effect attributed by M. GUENESSEN to the formation of a superficial coating of metallic iridium.

Another method to which DEVILLE and DEBRAY give the name of mixed, permits them to prepare chemically pure platinum, more quickly and cheaply than by the old methods.

Finally, we owe to the same chemists a method of treatment which is easily applied to the osmide of iridium, which formed, hitherto, a useless residue; but the properties of which have demonstrated its value.

Such are the processes by which some of the ores of platinum are metallurgically treated. In Russia they are already in use. The other countries producing platinum, Brazil, Peru, Colombia, etc., the annual production of which is almost 1,000 pounds, ship their ores directly to France, England and Germany, where they are treated, in the most important works, by the same methods.

II.—METHODS IN THE HUMID WAY.

Wollaston's Method.—That method is based on the solution, in aqua regia, of the platinum, to the exclusion of the osmide of iridium; the precipitation of the metal to the state of chloroplatinate; the decomposition of this salt; and lastly, the compression of the spongy metal thus obtained.

The aqua regia used must be weak, without which precaution the osmide of iridium will be partially attacked. It is prepared by taking fifteen parts of hydrochloric acid, to which its volume of water is added, and four parts of commercial nitric acid (NO⁴ HO). This quantity is put with twelve parts of the ore, and is sufficient to dissolve ten. The operation is conducted in an earthen cylindrical vessel, placed over a sand bath, and provided on its upper part with two tubes, one for the introduction of the material, and the other for the escape of gases. Inside the vessel is a vertical porcelain axis, which sustains a series of plates. The ore is placed on these plates so as to avoid a heap in the bottom of the vessel; then the aqua regia is added. The operation is begun at the ordinary temperature, and is continued by gradually raising the temperature, and allowing digestion for three or four days. When, after this time, the aqua regia is found to be inactive, the solution is decanted, it contains nearly all the platina and foreign metals (except the osmium and iridium) in the states of chlorides.

The cooled solution is treated with four parts of sal ammoniac dissolved in twenty parts of water, and a yellow precipitate of chloroplatinate is immediately produced. After settling, it is thrown on a filter, carefully washed with cold water, and slightly pressed to separate the mother-liquid. All these liquids, which contain, besides the foreign metals, yet a certain proportion of platinum, are re-united, and treated with a clean bar of iron, which precipitates all the metals but iron. The metallic powder is collected, re-dissolved and precipitated as was the ore itself; only, concentrated hydrochloric acid is added to the liquid to prevent the precipitation of palladium and lead.

The chloroplatinate of ammonia, well expressed, is introduced into a crucible of plumbago, in which it is heated, little by little, very carefully. Water disappears first, then the sal ammoniac sublimates, the chloride of platinum decomposes and leaves as a residuum a gray sponge of platinum.

To transform this spongy matter into a coherent and malleable metal, it is powdered in a mortar with an iron pestle, care being taken not to smash the grains, which would prevent them from soldering together during the compression: the pulverized matter is compressed through a sieve and washed in water. The fine mud which deposits during this washing is ready to be compressed; the coarse parts are pulverized anew.

The apparatus used by WOLLASTON, to compress platinum, is a brass gun, about ten inches long and one inch in diameter. This mould is slightly conical, and closed at one end by a movable plug of steel. It is filled with powdered platinum, and the upper part is pressed so as to force out the greatest part of the water. Then it is laid on a horizontal press, and a piston is pushed into it. The pressure is gradually given and pushed as far as possible. When its effect is complete, the mass of platinum is already coherent enough not to break when handled. This mass is placed on a charcoal fire, which finishes the drying and burns the grease and other organic impurities that it contains. It is then carried into a blast furnace, and, covered with a crucible, which isolates it from the coal, it is for one hour submitted to the highest temperature it is possible to produce. Under the influence of the heat, the molecules of metal solder to each other by a kind of half fusion, and when taken out of the furnace, the metal is ready to be worked.

Russian Method.—This method differs sufficiently from that first given by WOLLASTON to deserve description. The ore is treated with aqua regia in large porcelain dishes, heated on a sand bath. The solution of the chlorides is diluted with waters of the washings of preceding operations until it marks 35°, then treated with milk of lime, used in such a quantity that the liquor remains slightly acid; the iridium, rhodium, iron, copper and a part of the palladium are precipitated as oxide, while the solutions are chloride of platinum and lime, with traces of palladium and other metals.

The liquor is evaporated to dryness, and the residuum calcined to redness, until complete transformation of the double salt into chloride of calcium and metallic platinum is effected. The mass is washed to dissolve the chloride of calcium, and the platinum is left in a spongy state, which is treated in the same manner as in WOLLASTON'S method.

As for the precipitate furnished by lime which contains, besides iridium, a small quantity of platinum, it is washed with water and dissolved in sulphuric acid. Some sal ammonial being added to the solution, precipitates a little chloroplatinate, which is treated as in WOLLASTON'S method. The mother-liquor in which this salt has been precipitated, and which contains palladium, rhodium, iridium, and even a little platinum is treated with metallic copper, which precipitate all the metals; they are redissolved in aqua regia and separated from the platinum as indicated above.

[TO BE CONCLUDED.]

GAS-FLAME REACTIONS—III.

By R. BUNSEN, Professor of Chemistry at the University of Heidelberg. Translated for the AMERICAN JOURNAL OF MINING, by H. ESDORN, Ph. D.

Continued from Page 274

The time required for the evaporation of one centigramme of common salt may be most conveniently taken as the unit of volatility. If this period be t_0 and that required by any other substance of equal weight, t_1, we may represent the volatility of the latter as compared with salt by $F=\frac{t_0}{t_1}$. I give as examples the following determinations, carried out by Dr. HURTZIG, with the exception of those of the chlorides of rubidium and cassium, which I added myself:

	Time of Evaporation.	Volatility.
Chloride of sodium	84.25	1.000
Sulphate of soda	1,267.0	0.066
Carbonate of lithia	736.5	0.114
Sulphate of potassa	665.2	0.127
Carbonate of soda	632.0	0.133
Carbonate of potassa	272.0	0.310
Chloride of lithium	114.0	0.739
Chloride of potassium	65.4	1.288
Bromide of sodium	48.8	1.727
Bromide of potassium	41.0	2.055
Chloride of rubidium	38.6	2.183
Iodide of sodium	35.7	2.360
Chloride of caesium	31.3	2.717
Iodide of potassium	29.8	2.828

I should not omit to mention that the proportions of these numbers are considerably altered, when the quantity tested and the temperature of evaporation are changed. So much the more striking is it, that there appears an approximately constant relation between the volatility and the atomic weight of the more volatile and analogously constituted substances of the above series, which can scarcely be set down as a mere coincidence. The following figures, namely, prove that the volatility of the haloid compounds which may be evaporated without residuum, increases in inverse ratio to the atomic weight. If we call the latter A, and the volatility F, we have in fact, very nearly $\frac{F}{A}$ = constant.

	A	F	$\frac{F}{A}$
Chloride of lithium	42.49	0.739	0.0174
" " sodium	58.43	1.000	0.0171
" " potassium	74.57	1.288	0.0173
Bromide of sodium	102.97	1.727	0.0168
" " potassium	119.11	2.055	0.0173
Chloride of rubidium	120.82	2.183	0.0181
Iodide of sodium	150.07	2.360	0.0157
Chloride of caesium	168.46	2.717	0.0161
Iodide of potassium	116.21	2.828	0.0170

Drops of water, alcohol, ether, and other volatile substances, held in the flame on the platinum wire, do not boil, even in the hottest part of the melting-space, but show the phenomena observed in the experiment of LEIDENFROST.

4. *Flame-coloring.*—Many substances, volatile in the flame, may be distinguished by the different kinds of light which they emit in glowing gas. These colorings appear in the upper zone of oxidation, when the substances producing them are held in the upper zone of reduction. Mixtures of different flame-coloring substances are examined in the coldest part of the base of the flame, where it is often possible to produce for an instant the color-reactions of the more volatile substances, unmixed with those of the less volatile.

B. *Oxidation and Reduction of Substances.*—In order to reorganize substances by the reactions which they exhibit under oxidation and reduction, and to accomplish their separation for further examination in the most economical form, the following methods are employed:

1. *Reduction in glass tubes.* This is especially used for detecting quicksilver, or separating sulphur, selenium, phosphorus, &c., in combination with sodium or magnesium. Very thin glass tubes, two to three millimetres in diameter, and about three centimetres long, are prepared in advance. Forty such tubes may easily be produced from a single ordinary test-tube, by heating it evenly in the flame till the glass is soft, slowly drawing it out into long tubes of the proper size, breaking these (with the aid of a diamond), into pieces of six to eight centimetres in length, drawing these apart in the middle, and finally melting the ends round. The assay, firmly crushed on the lamp-plate, FIG. 3, with the steel blade FIG. 4, *a*, is treated, in these tubes, either with charcoal and soda, or, by itself, with sodium or magnesium. In using the latter, pieces of moderately thick magnesium wire, a few millimetres in length, are sunk into the assay in the tube. Sodium must be carefully freed from mineral oil with filter-paper, and rolled between the fingers to a small cylinder, which is then to be surrounded, in the tube, with the assay. The best form of charcoal is the soot from turpentine oil, collected on the bottom of a porcelain dish filled with cold water. The tube containing the assay (which has previously been carefully dried and freed from water) having been brought to the melting point of the glass—at which, generally, an appearance of fire within is observable—is then removed, cooled, and crushed under a slip of paper, on the lamp-plate, with the steel blade, in order to examine further the products of reduction.

2. *Reduction in the charcoal rod.* This produces the metals melted to small globules, or in spongey mass, and may be carried out accurately with a fine particle of assay, weighing less than a milligramme.

A crystal of carbonate of soda (not weathered) is approached sidewise to the flame, when a soft drop forms upon it, with which a common match is rubbed for three-fourths of its length. This being turned slowly in the flame, a crust of solid carbonate of soda is formed around the charred wood, and being heated in the melting space, melts and is absorbed by the charcoal. In this way a charcoal rod is obtained, which is protected by a glazing of soda from too easy combustion. The assay, mixed in the palm of the hand with a drop of melting soda crystal, by means of the knife, FIG. 4, is put, in the size of a grain of millet, upon the tip of this rod. After it has been melted in the lower zone of oxidation, it is moved, through a part of the dark flame-cone, into the opposite, hottest part of the lower zone of reduction. The moment of reduction is recognized by a violent swelling of the soda, which is to be checked, after a few seconds, by cooling the assay on the charcoal rod in the dark flame-cone. In order to isolate the precipitated metal, the end of the charcoal rod carrying the assay is pinched off with the fingers, and rubbed in a small agate mortar with a few drops of water, when the metallic particles distinctly appear, generally without any further washing away of the charcoal. For further examination, these metallic particles can be easily separated by a careful washing from charcoal and soda, and put in a shallow glass dish, which is best broken out of the fragments of a *thin* flask. (Watch glasses are too liable to crack to be suitable for such experiments.) Here they are again rinsed, and after the water is poured off and partially dried with filter-paper, the metal can be thorough-

ly dried at a low heat. A few tenths of a milligramme of such isolated metallic particles are generally sufficient for a solution which exhibits all characteristic precipitations, if the reagents are taken in a hollow capillary glass thread, applied to the solution in drops, a milligramme at a time, and the results observed with a magnifying glass. Iron, cobalt, and nickel, which do not melt into globules on the charcoal rod, are to be extracted in the agate mortar, out of the rest of the mass, rubbed in water by means of the magnetic knife, FIG. 4, *b*, and dried high over the flame, on the blade. They can be collected for further examination with a borax pearl, and the remainder, clinging to the knife, may be removed to a piece of filter-paper, dissolved with a drop of acid (the paper being warmed over the flame) and tested with reagents.

AN ACCOUNT OF THE CENTRAL AND MINERAL DISTRICTS OF VERA CRUZ—II.

Written for the AMERICAN JOURNAL OF MINING, by CHARLES DE ST. CHARLES, Jalapa, Mexico.

(Continued from p. 259.)

THE CITY OF VERA CRUZ.

This city, the capital of the State and District of the same name, situated in Lat. 19° 11′ N., and Long. 2° 50′ E. of Mexico, is the most important commercial part of the Republic, while the insufficient shelter it affords shipping against northerly winds, renders it one of the poorest harbors. The city is circumscribed with a wall not exceeding in height and thickness that of an ordinary garden-wall, but 3,174 Mexican yards in length. There are nine small forts, of no strength, and a population amounting to nearly 12,000. This city, once very wealthy, is now in a state of considerable dilapidation, many of the best citizens having been entirely ruined by the late war. That part of the city built during the last few years, outside the walls, on the South, was almost totally destroyed during the siege of the past summer. The distance from Vera Cruz to the City of Mexico is about two hundred and fifty-four miles. The railroad, designed to connect the two cities, has been finished from Vera Cruz as far as Paso del Macho, a distance of sixty-five miles.

THE TOWN OF CORDOVA,

Capital of the District of the same name, is situated in Lat. 18° 53′ N., and Long. 2° 12′ E. of the meridian of Mexico. It has a population of about 7,000. The climate is mild and humid. Cordova is noted for its fine coffe and sugar-cane, the latter product having been partially abandoned for the cultivation of the former, partly on account of scarcity of labor, but more especially because the coffee, once planted, requires no more care than is ordinarily bestowed upon an apple orchard. To this subject the attention of American agriculturalists is especially called.

THE CITY OF ORIZABA,

Capital of the District of the same name, is situated in Lat. 18° 50′ N., and Long. 2° 1′ 42″ E. of Mexico. It is 3,987 feet above the sea-level, 144 miles from Mexico, 100 miles from Vera Cruz, and 70 miles from Jalapa. The population within the district limits amount to 37,695.

COMMERCE AND INTERNAL TRADE.

We are now prepared to return to the consideration of the nature and condition of the commerce of the State. It is a well-known fact that the Railroad Company, among the valuable "concessions" they have received from the government of Mexico, are allowed to import railroad iron and rolling stock, free of duty, at the port of Vera Cruz, where they possess a separate dock; and it is generally understood by observing business men, that a great deal of other merchandise is landed at this dock without being subjected to Custom-House examination. It is believed that in this way, and aided by ample arrangements for communicating intelligence as to the number and nature of cargoes afloat, a perfect system of contraband trade has been kept in continual operation, robbing the State of fifteen millions of its lawful revenue annually. This evil is accompanied (as is often the case) with an excessive import tariff, both municipal and internal, upon iron and other heavy goods, amounting to from four to six cents per pound, gross weight. The import duties at Vera Cruz, on iron, amount to nine millions of dollars annually. Machinery only is exempted from internal duties. The result is, that all iron foundries or machine shops of any magnitude are entirely obliterated from the Republic; and consequently, all those primary and extensive industries which directly depend upon iron, are greatly depressed. It is true, that the high tariff alluded to is an important inducement to iron *miners;* but so long as the mining enterprise of the country languishes from other causes, this encouragement goes for nothing. These influences explain, more truthfully than the sweeping hypothesis of national laziness, the general backwardness of Mexican industry in every department.

As regards internal improvements, there is much more to be desired than there is, as yet, to be recorded. The costly but abortive attempt to construct a railroad from Vera Cruz to Mexico included a disastrous mistake in locating the route; and the present terminus of the road, at Paso del Macho, is likely to remain such forever, on account of the manifest impracticability of completing the line. This unfortunate location was made at the dictation of real estate speculators pecuniarily interested in the country through which it passes. Aside from the engineering difficulties of this route, and its consequent immense cost, the poverty of the country traversed is such as to forbid the hope of a remunerative local business for a century to come. The proposed route from Paso del Macho lies through the Chiquihuite mountains to the table land in the State of Puebla, involving, in the twenty-five miles between Orizoba and the table land, an ascent of four hundred feet to the mile. Had a great national railroad been honestly located, with a view only to cheapness and rapidity of construction, safety and economy of operation, and the greatest present profit and future development of the agricultural, mineral and commercial resources of Mexico, it could not have failed to occupy the line, unerringly pointed out by all these interests, viz.: from Vera Cruz via Jalapa, Las Vigas, Perote and Puebla to the city of Mexico. This route not only avoids all difficult and dangerous ascents, but also passes through, perhaps, the most enchanting scenery in the world. These advantages are evident from the following sketch. Leaving the port of Vera Cruz, the road would pass through the *cañada* (valley) de Octopan, which is without a superior in agricultural wealth and water power, and running along the entire mineral district, at a gradual elevation, rise to Jalapa, 60 miles from Vera Cruz and 4,334 feet above the sea-level; thence N.W. to Las Vigas, distant 26 miles from Jalapa, and 6,726 feet above the sea level. This latter point is on the level of the table land of Puebla, called *Mesa*, which is thus attained by a perfectly practicable route. The gorgeous natural beauty of the region thus bisected has been the theme of travelers in all times, and gives rich promise in luxuriant vegatation, fruitful fields and orchards, of future prosperity and wealth. It is a great pity that private pecuniary motives, combining with the ignorance of the engineers who located the railroad, should have betrayed so shamefully, by refusing this admirable route, the best interests of Mexico.

[TO BE CONTINUED.]

Mining Summary.

GOLD AND SILVER.

Nevada.

The Comstock.—The mining share market in the last quarter, says the San Francisco *Mercantile Gazette*, Oct. 9, has undergone a very general depression in value. The general condition of the mines on the Comstock lode at the beginning of the year was better than it had ever been before. Most of them were working in recently discovered good ore, and dividends were paid by a greater number than ever before. This state of affairs had developed some degree of confidence in the public mind, and there was, availing of the abundance of money, great disposition to deal in stocks. As a consequence, the aggregate of transactions in May was three times that what it was in March; and this activity continued up to the close of the quarter. Towards the close of the quarter it became manifest that the levels on which the mines were working were giving out, or at least that the ore was less abundant and of lower quality. This fact involved the necessity of sinking for a lower level, and generally speaking a new level is being sought for, and the ore worked or in sight is economized to meet all expenses until a new lead shall be established in good ore. In some cases dividends have been stopped, in others assessments levied, and in some fears of assessments are entertained: under these circumstances, prices, as will be seen in the annexed table, are much depressed. Hale & Norcross' stock, which had been out of the market for more than a year, suddenly made its appearance, Sept. 3d, at $2,500, seller 60, and was sold with such recklessness that it fell to $850 at the close of the quarter, with but a small number of sales. There was no apparent cause for the fall, for the operations of the mine had been as follows:

	Tons rs'd.	Value.	Average.	Div'd per foot.
July	3,278	$133,906 17	$40 85	$125
August	3,117	121,578 00	39 00	125
September	2,612	71,692 82	27 44	none.

The new shaft sinking by this company was down 566 feet at the close of June, and had reached 900 feet at the close of September, nearly ready to commence a new level. The magnificent engines and hoisting works were completed and worked well. This machinery being paid for in September, exhausted the surplus of the company. The amount of payments for machinery, etc., in August, was over $118,000. Savage stock at the beginning of the quarter was firm at $5,000, and gradually declined to $2,200, under less production and diminished yield of the ore. The operations were nearly as follows for the quarter:

	Tons.	Value.	Per ton.	Divi'd per ft.
July 6	1,629	$66,440	$40 78	
July 13	2,009	77,647	36 98	
July 20	2,210	96,394	43 61	$250
July 27	2,359	95,234	40 41	
Aug. 3	2,144	78,157	36 45	
Aug. 10	2,012	82,941	41 22	
Aug. 17	2,210	94,996	43 00	$250
Aug. 24	1,972	88,091	44 67	
Aug. 31	2,095	81,382	38 84	
Sep. 7	1,790	71,880	40 01	
Sep. 14	1,631	68,747	42 15	$150
Sep. 21	1,879	77,803	41 40	
Sep. 28	1,962	73 878	37 65	
	25,980	$1,053,590	$40 55	

The month of July commenced with decreased production, owing to repairs of machinery. On the 30th, at a meeting of stockholders, the certificates were altered from one share per foot to twenty shares per foot; since then various circumstances, such as cave in the works, have conspired to reduce the products of the mine, and the ore has been lower in value. Gould and Curry stood at 800 at the close of June, but fell rapidly to 300 to the middle of September, when an assessment of $100 per foot was levied, the first since November, 1861. The company have been steadily exploring in the levels and paying expenses from the old body of ore which has been raised at the rate of 60@100 tons per day. The approximate expenditure of this before striking new ore has led to the assessment. Chollor-Potosi has been steady in price during the quarter. It opened with July at 445, and fluctuated with reports of ore. It rose to 452 in August, and it fell 219 at the close. This company have been sinking their new shaft, and struck a small body of ore 860 feet deep, a lower point than it had ever previously been struck on the lode. It did not prove large, and, drifting from the shaft, commenced at 900 feet. The operations of the company for the quarter were nearly as follows:

	Tons.	Value.	Per ton.	Dividend Per share.
July	11,221	$311,681 17	$27 75	25 00
August	12,417	350,000 00	28 57	25 00
September	10,391	280,757 00	27 00	25 00
Total	34,029	$942,438 17	$27 43	

Yellow Jacket has suffered a heavy fall from $1,655 per foot, July 1st, to $400 at the close of the quarter. The bullion products of this mine diminished rapidly at the close of June, and no dividend has been paid in the last quarter. On the other hand, it was found necessary to sink 200 feet further, and assessments to meet the expenses are rumored. Crown Point stock, which was at $2,200 at the beginning of July, run steadily down to $900 in the first week in August, when reported discoveries of ore caused reaction to $1,570. The downward course was, however, resumed, and the price sank to $665. The mine has paid no dividend since April earnings. The mine has continued sinking and exploring, with occasional discoveries of small lots of ore. The bullion returns in July were $117,000; in August, $54,291; in September, $35,000. Imperial has suffered a considerable decline, or from $237, July 1st, to $110 at the close of the quarter. The great Imperial Empire shaft has progressed steadily, and new machinery has been erected, and drifting from a depth of 900 feet is expected to commence shortly. Some good bodies of ore have been discovered, and the bullion receipts were, for July, $99,627; August, $89,280; September, $99,479 36. Two dividends of $10 per share have been paid.

Newark District.—The Austin *Reveille* of the 5th says: We saw to-day the first bars of bullion from the mill of the Centenary company, in the Newark District. They were respectively 694 and 760 fine. The bars were the product of inferior ore from the Chihuahua mine, which was reduced without roasting, as an experiment. Only 25 per cent. of the silver was obtained by the process. This result was anticipated by Mr. Bailey, the agent of the company, who will have roasting furnaces completed in a short time, after which the mill will fairly begin to work. We are informed that there is a large supply of excellent ore in that mine.

Silver Bend District.—According to the *Reporter* of the 12th instant, the property of that district will not depend altogether upon its Highbridge and Transylvania ledges, as extensive and valuable as they are known to be. Recent developments made by the Westport company give ample assurance of their possessing an extensive and rich ledge. It is situated about seven miles west from Belmont, in a locality known as Spanish Belt—a belt of slate extending southeast and southwest along the eastern slope of a chain of mountains dividing Ralston's valley from Smoky valley. The character of the formation in which the ledge occurs is similar in appearance to that which surrounds the Highbridge. The ore resembles that produced by the Transylvania mines, and is probably fully equal in point of richness. The mine is owned principally by parties in Carson City and in San Francisco, who intend to construct the necessary reduction works at an early day next spring. The ledge is from ten to twelve feet thick, and is surrounded on either side by a few inches of a black putty-like clay, which separates it on the west from a wall of hard talcose slate, and on the east from a wall less firm, and composed of clayey slate. Nearly all the ore of the highest grade is found next to the eastern or hanging wall, and forms a body about four and a half feet thick. Several tons of fine ore now lie upon the dump, and a large body is exposed to view in the ledge. Few companies set out with more encouraging prospects for a valuable and prosperous mining enterprise.

Reese River District.—The developments in the South American mine, says the *Reveille* of the 17th ult., are more than satisfactory. The perpendicular shaft has not been pushed any deeper for several weeks, and is now precisely 168 feet deep. Levels extend east and west, and a fine quality of sulphuret ore is uncovered. We learn that some thirty tons of superior ore have been extracted and are in the house, the yield of which will be very high. The mine is among the earliest locations on Lander hill, and we doubt not that its superintendent, Triplett, will prove it to be among the best.....The bore of the Sherman shaft is too great for the donkey-engine, which has, however, been doing its very best for a couple of months, and the work has been stopped until the new and powerful machinery can be erected. We learn that that will be done immediately. The present depth of the great shaft is 245 feet.....Rich sulphuret ore, glowing with ruby, was struck yesterday in the Ethan Allen. It was encountered at the slight depth of eighty feet in a compact vein eighteen inches in width. The Ethan Allen lies in a reputable neighborhood, and is expected, of course, to produce good ore. George H. Willard, of Murphy Twin river celebrity, is the superintendent.....The Diana mine, an old location on Lander hill, is producing ore of an excellent quality. The reduction of one hundred tons has just been completed at the Metacom mill, the average yield of which exceeded $200 per ton. Not a great while ago the Diana was neglected, but its present developments show that it is worthy of being cultivated.....Just now, the Magnolia mine is producing superior sulphuret ore. Twenty-three tons were reduced at the Manhattan mill last week, the assay of the pulp of which was at the rate of $222 per ton. We were informed by Superintendent Clark that the incline shaft is 284 feet deep, and that the ore mentioned above was taken from the lowest level, which is 275 feet below the mouth of the incline.

Hot Creek District.—A correspondent of the Stockton *Independent* gives a very promising view of the prospects of the district of Hot Creek. It is generally faithful. He says: In two months' time the population has increased from fifty to upwards of three hundred persons. Houses are being put up as fast as lumber and material can be had. There are four saloons, two stores, two boarding-houses, one blacksmith shop, one boot and shoe shop, two quartz mills, (one a slender affair, and idle,) and about thirty houses. The mill of the Old Dominion company will prove a success. It has a fine situation. Within the distance of some fifty miles north and south in the same range of mountains there are several mining districts, from all of which the best quality of ore is being sent to the mill. There is a large number of good ledges in the district, the most prominent of which are the Merrimac, Indian Jim, Old Dominion, Pilot Knob, Silver Glance, New Cumberland, Vinton, Tiger and Alta. The Old Dominion ledge is remarkable for its size and the quality of rich ore that it produces. There are great bodies apparently covered with horn silver. About one hundred and fifty tons of very superior ore have been taken from the mine, and there appears to be penty more of the same sort left. The district possesses an abundance of wood and water, and there is plenty of salt within forty miles.

Cortez District.—Four tons of first class ore from the Taylor and Passmore mine in the Cortez district, yielded 775 ounces of silver of average fineness. The ore was reduced at the mill of the Mount Tenabo company.

Colorado.

The Gold Hill *News* gives the mode of working the ores of the Montezuma mine, Humboldt county, Nevada, as follows: The ore of this ledge consists of an oxide of lead and antimony, and much of it combines in the form of an antimoniate of lead. The ore contains from $60 to $300 of silver per ton, and the entire vein of from fifteen to twenty-five feet in thickness, is about fifty per cent. metal. It is reduced by smelting. The reduction works

at first erected, though incomplete, produced from 300 tons of ore, $25,000 in fine bullion. The product of the smelting operation is an alloy of lead, antimony and silver, the antimony varying from thirty to forty five per cent. To separate these metals, two distinct processes are required, and in furnaces peculiarly adapted to each operation. In the first, the antimony is volatalized and driven off, leaving an alloy of pure lead and silver. This is called calcining. The lead and silver are then separated by cupellation.....The Georgetown *Miner*, of the 24th ult., describing a trip to East Argentine, shows the state of some of the lodes: Since our visit last spring there has been some work done on the Belmont lode. A short drift or adit has been run in on the vein and a few tons of ore taken out which was treated by Garrott, Martin & Co., at their works in Georgetown, and yielded four hundred ounces silver to the ton. A contract was let to Howard Bam on Monday last, to run the adit on the vein one hundred feet from its present terminus. The work is to be five feet wide and six and a half feet high. The ore vein in the Belmont is about fifteen inches wide, and in this it is almost impossible to select one piece of ore that is richer than another. We have not seen in the country a seam so uniform in its character, and regard this load as the very best that has yet been opened in Colorado. It was the first silver lode discovered; its discoverers being Messrs. Huff and Steele, to whom the districts of the silver belt are indebted for the certain promise they now enjoy of unexampled prosperity. There has been a great improvement made on the Bullion lode. The shaft that was then being worked is abandoned, and an adit forty feet in length has been run on the lode from which a large amount of very fine looking ore was taken. This work was done under the superintendency of Judge Stowell for an eastern company. The Harris lode is an old discovery, situated below the Bullion, and it was at one time believed that the latter, which is a later discovery, was the same lode. Recent developments, however, have proved, beyond a doubt, that the two are separate and distinct veins. The Harris is being actively worked under the superintendence of Professor Dibbin. An adit about thirty feet in length is run on the vein, and a seam of ore ten or twelve inches wide of very fine quality lines the lower wall. Belmont No. 2 is a discovery made the present season by James C. Huff, to whom it belongs. Mr. H. did a great amount of hard work to find it, and we are glad when such success comes to those who so worthily deserve it. Gathering the water from the melting snows at the summit of the mountains, he sluiced the debris in some places eighteen or twenty feet in depth from the mountain side. In this way four lodes were uncovered, but the wished-for extension of the Belmont was not among them, but was subsequently discovered by another sluicing operation, a little above and to the northward of the former work. The debris or slide covers the lode at this point to a depth not less than twenty feet. The ore vein of the Belmont No. 2 is wider than the original Belmont, the ore presenting the same general characteristics, it being impossible to distinguish apart specimens from the two mines. This discovery possesses one advantage over the original in the fact that it is situated lower down the mountain, and therefore can be proportionately cheaper worked. The Wilson lode is also the property of Mr. Huff, and is situated a little below the lode last described. It is a fine vein, well developed by an adit about thirty feet in length. The crevice is about three feet wide, with an ore seam of rich argentiferous galena with sulphurets ten inches in width. The ore of this lode at the surface assayed $196 in silver per ton. The work on the mine is well done and in the best possible shape. Below the Wilson is the Durango lode. This is also the property of Mr. Huff, and like his other work is in excellent shape. The Durango is a large, well defined lode, has an ore vein eighteen inches wide, filled with very promising material. It has not yet been tested, but if appearances are good for anything we judge it will prove richer than the Wilson.....The same paper has the following: The Monticello lode, Columbia mountain, is being actively worked by its owners, Messrs. Steele, Archibald & Gray. The shaft is now thirty-five feet in depth, showing a five and a half feet crevice between smooth, permanent walls. A sixteen inch vein of very fine gangue, carrying galena and zinc blende, lies against the upper wall, and an eight inch vein of sulphuret of silver against the lower wall. The vein is opening up finely, and will, no doubt, prove a mine of wealth to its fortunate owners.....We understand that ores to the amount of $30,000 have already been subscribed for the erection of reduction works here, and that it will probably reach $15,000 or $20,000 more. Nothing can be done to more thoroughly convince people of our confidence in the mines than this subscription.....A quantity of very fine ore, from the Cliff lode, Democrat mountain, has been brought down to the works of Garrott, Martine & Co. for reduction. The Cliff is one of the very best sulphuret veins in the territory, not only in quality but quantity.....We were shown, a few days since, a certificate of assay of a specimen of ore from the General Fitch lode, situated in West Argentine district, on the mountain opposite the celebrated Baker lode. The assay was made by Mr. Chas. A. Martine, of Garrott, Martine & Co, of this place, and the result obtained was $1,344.41 per ton in silver. The lode has a five foot crevice, shaft ten feet deep, with an ore seam, of the same character as the specimen assayed, two and a half feet wide. It is the property of Col. O. C. Scoville, of Cleveland, Ohio. This ore is pronounced by Prof. Martine, to be a pure grey and black sulphuret of silver. An assay of ten pounds of the ore yielded five ounces and one pennyweight of silver.... There is one shaft in East Argentine that is fifty-eight feet in depth, and is not yet through the frozen ground. The shortest cut to the hot place cannot be by way of Argentine soil..... The shaft on the Muscovite lode is thirty-six feet deep. The crevice is full five feet wide, and is filled with rich galena and quartz. Both walls are in sight, and the prospects are very flattering.....The Central City *Times*, of the 26th ult., says: The Excelsior Reduction Works of Krauss, Reese & Brackner, have lately treated the following parcels of ore: Forty-two tons of Pewabic yielded 61 50-100 ounces gold; three tons of Bobtail ore, 10 50-100 ounces, and four and a half tons from the Wautoga lode 7 60-100 ounces. The "California process" keeps steadily at work, and its success as a paying method of treating refractory ores is undoubted.....We have been shown some fine specimens of ruby silver from the May lode. The Excelsior works will commence running on ore from this and the La Plata lode on Monday. The barrel amalgamators for silver are in place..... The maximum yield in bulk of the silver ores of Georgetown is about one per cent. This is equivalent to over $320 per ton, or about ten times the average of the yield from the Comstock ores. Of course all the Georgetown mines will not average one per cent. of silver, but it is satisfactory to have such high scientific authority as to the great value of some of the mines.....The Denver *Tribune* of the 25th ult., says: The new process of the Kenyon Mining Co. is gradually but surely getting into operation. They pulverize the ore, and, wetting it with a chemical solution, known of course only to the operators, mould it into brick and burn it in a cheap furnace. The one in use, Mr. Kenyon says, roasts 30 tons in 24 hours, using half a cord of wood. We saw some of it panned down, and think the raw pyrites left would not constitute more than one per cent. of the bulk of the roasted ore, perhaps not so much as that. Coming from the kiln, it is reground, and then amalgamated in dolly tubs and pans. This portion of the machinery was not yet started at the time of our visit, but has since been, we understand. From the result of small tests, of which we have heard, we are inclined to believe that the amalgamating of the gold in ores roasted as above is as easy and perfect as in that roasted in the California cylinders. And of course there is no comparison between the expense of roasting by the two methods. We hope and trust that within a few days or weeks, Mr. Kenyon will have demonstrated on a working scale and on different ores to the satisfaction of the public, the possibility of desulphurizing and amalgamating, *cheaply*, the great bulk of the pay-rock of *this* district. Such a demonstration is all that is necessary to infuse new hope and courage into the community—to cause life and prosperity to take the place of the prevailing stagnation and listless despondency ... The Georgetown correspondence of the same paper, details the result of a visit to some lodes: The next lode visited was the Tom Corwin, a splendid lode—the crevice being about five feet wide, and showing the full width seams of first class ore. These seams will, we think, when the shaft is sunk a little deeper, all unite in one solid vein of as good minerals as can be found in any lode. The owners, Messrs. Fisher, Cooper & Co., at the present time have several tons at the Georgetown Smelting Works for reduction. Beyond and west of this, is the State of Maine lode, which is the extension of the Corwin. A shaft has been sunk on this to a depth of eighteen feet. From wall to wall this crevice measures almost seven feet, and is filled with good quartz, showing some mineral which assays from $200 to $600 per ton of 2,000 pounds. To the west of this lode about two hundred feet, is the celebrated William B. Astor lode. We suppose there has been some richer ore taken from this than from any other in the district. Prof. Charles H. Nerr, out of six pounds of ore, obtained *two pounds and one ounce* (Troy) of silver. Messrs. Garrott, Martine & Co. have just finished running one ton of first-class ore from this mine, and obtained *twelve hundred dollars* in silver, coin value.

British Columbia.

The *British Colonist* thus sums up the latest developments in what is termed the creek difficulty: "It would appear that Governor Seymour, when at Cariboo, pledged himself to give the Canadian Company a new trial. Upon his return to Victoria his Excellency recommended the Flume Company to submit the dispute to arbitration, and named Mr. Trutch as arbitrator. The Flume Company consented, and Mr. Trutch was under orders to proceed to the mines and hear and decide the case. His letter of instructions had been signed and published, when, to the surprise of the Flume Company and the country, it was announced that no arbitration would take place, and that Mr. Needham was to try the case *de novo*. The surprise lasted until Saturday evening, when the arrival of the boat from the mainland placed us in the possession of the Cariboo *Sentinel*, from which we learn that the Canadian Company "refused to submit the case to arbitration;" that "they would accept nothing less than the law allows them;" and that they insisted upon having a "new trial." From the Cariboo *Sentinel* we learn that miners in the various creeks are doing well, those on Williams creek excepted. Their mining prospects have never been so gloomy during any previous season, as they have been this year. Want of water is the cause. A new creek, which Mr. Oliver Urquhart, the discoverer, has named Mustang Creek, is reported to contain gold in paying quantities. It is situated about 25 miles to the north-west of William creek and four miles to the north-west of Sugar creek; it is about one and a half miles in length and empties into a large creek which was also named by the Urquhart party Beaver creek, from the great number of beaver that abound in that vicinity. Urquhart and his party have prospected it sufficiently well to know that they can make from twelve dollars to twenty dollars a day to the hand, and even more if there was a plentiful supply of water.

COPPER.

Michigan.

We take the following items from the Lake Superior *Miner*: "The Ridge mine, with a mining force of thirty men is producing well, the product of the mine last month being over twenty-eight tons. West of No. 3 shaft back of the X fathom level two men are engaged stoping, with most promising results, the vein being very rich, and showing heavily in copper. West of No. 3 shaft back of the XX fathom level a party are also stoping, at the point where so much copper was produced last month, and from present appearances a considerable amount may be looked for this month. Passing still further west in this same level, work is being prosecuted, but the vein is now poor, although a great deal of copper was raised from this drift during the summer. East and west of No. 2 shaft in XX fathoms level, a party of eight men are engaged stoping; vein looking well. Several horns of copper protruding where works are being prosecuted. Farther east of No. 2 shaft two men have produced over a ton of copper this month, the vein being wide and very rich. A force were employed driving the X fathom level west to connect No. 1 and 2 shafts. When this is done a vast amount of stoping ground becomes available. As will be seen by the descriptive glance of the Ridge, most of the force are engaged in and about No. 3 shaft with fine results.....Work commenced at the Nonesuch mine about the first of the month, the small force of only ten men being at present employed. The directors have given orders to sink another shaft on the east side of the Nonesuch property, and the force are here at work, new buildings are being erected preparatory to more extended workings in the future. ..The following is the monthly report of mines, September, 1867:

Name.	Barrel work.	Stamp.	Mass.	Total—tons.
National	8,964	20,880	17,383	23 1227-2000
Minnesota	5,808	16,425	40,124	31 427-2000
Caledonia	Not stoping—opening up property.			
Ozima	Report next week.			
Evergreen Bluff	24,045	23,985	22,377	35 405-2000
Knowlton	13,729	28,529	8,930	25 78-2000
Ridge	29,576	16,279	12,172	24 477-2000
Rockland	5,540	4,821	350	5 710-2000
Superior	2,325	12,850	1,070	8 245-2000

We extract the following from the Directors's report of the National Mining Company, published in the Ontonagon *Miner*: "The product of the mine in copper prepared for the smelting works, was 911,292 lbs., consisting of the following varieties, viz:

356 masses, 48.99 per cent.	446,396 lbs.
2233 barrels kiln or barrel work, 20.63 per cent.	188,062 lbs.
254 barrels stamp cop., 50.58 per cent.	276,834 lbs.
Total	911,292 lbs.

being an average of 37 1911-2000 tons per month, against an average of 44 916-2000 tons the preceding year. The percentage of each description, as compared with 1865, was, of mass, a slight increase—kiln, 7 per cent. less—stamps, an increase of 7 per cent. The actual shipment of the year differs somewhat from the above, owing to the fact, that in the month of November all the copper and mineral that can be shipped is sent forward, so that 902,040 lbs. only of the mineral raised is included in the shipment of 1866, the deficiency being the difference of quantity forwarded in November, 1865 and 1866, respectively. Of the above 902,040 lbs. there was smelted as follows, viz:

834,112 lbs. at Ontonagon, producing	593,615 lbs. net.
67,928 lbs. at Pittsburgh, producing	47,756 lbs. net.
71 47-100 per cent. refined copper	647,371 lbs. net.

The copper was sold, and produced, after deducting freight from Cleveland, commission and charges, $189,008.79, or 29 20-100 cents per lb. ... There was obtained also during the year of silver bullion 679 oz., which was coined and sold after 1st November, 1866, and yielded, including premium, $916.71. The mine expenses of all kinds, as shown by the report of the agent, amounts to $177,659.37, the average amount per month being $14,804.94, against $16,629.52 in 1865.... The following table gives the amount of copper produced from November, 1866, to July, 1867, taken from the same report:

Number of masses	181
Weight of masses	176,914
Number of barrels	124
Weight of barrels	103,241
Number barrels stamp work	193
Weight barrels stamp work	198,060
Total in pounds, 477,315. Total in tons	238 1315-2000

Average amount of copper per month, 26 tons, 1,035 pounds. The monthly product has fallen off, but no greater in proportion than has been the reduction in the mining force.... The same paper says of the North Shore Silver Fields: A peculiar and interesting fact connected with these fields has come to our knowledge. Although the Montreal Mining Company and Quebec Minining Company have jointly nearly one hundred and twenty thousand acres of these lands, yet there has never been a foot of it surveyed, nor have any taxes ever been paid; the land was entered upon the following principle: The old chart of Bayfield was taken and running back so many miles from the Lake shore, was supposed to contain so many thousands of acres of land, and it is upon this account that the Dominon of Canada will not allow any more lands to be entered; they do not know actually what they own, and before any lands can be taken up, it will be necessary to survey the vast wilderness, 'which' from present indications contain such wealth in silver.

Montana.

From Prof. Swallow's report on the resources of Montana to Gov. Smith, who makes the following interesting extract concerning its mineral wealth: "Veins of gold, silver, copper, and lead have been found in great numbers in nearly all the explored mountainous portions of the Territory; and placer gold is as widely distributed. Many of the gulches have proved vastly rich, and some of them very extensive. So far as discovered these auriferous veins come to the surface on the foot hills, and on the sides of the valleys and canons, and some of them cut the mountains to their very tops. A large portion of the lodes are *true veins*, cutting through granite, syenite porphyry, trap, gneiss, mica slate, hornblende slate, talcose slate, argillaceous slate, sandstone, and limestone. These lodes vary in thickness from a mere line to 50 and 60 feet. The gangue or vein rock called *quartz* by the miners, is very variable in character. In the gold-bearing lodes it is usually whitish quartz, more or less ferruginous; often nearly all of iron. In some veins it resembles a stratified quartzite; in a few it is syantic, pyrites, hornblende, calc spar, arsenic, antimony, copper. Tellurium and micaceous iron are found in these veins. In the silver lodes the iron so abundant in the gold veins is often replaced by the oxide of manganese. This mineral is sometimes so abundant as to constitute a large portion of the gangue. The gangue, in many of the copper veins, is made up of quartz, heavy spar, calc spar, brown spar, and oxides of iron. Many thousand lodes of gold, silver, and copper have been already discovered and recorded, and many of them more or less developed. It is true here, as well as in all other mining districts, that a large part of the lodes discovered can not be profitably worked by the methods usually adopted in new mining regions; but many of those which cannot now be worked with profitable results, will become valuable when experience has proved the best methods, and when labor and materials can be had at ordinary prices. There are, however, a great large number of large and rich lodes which will yield large profits, even at the present prices of labor and materials. Some of the lodes of both gold and silver will rank among the largest and richest in the annals of mining. In regard to the want of success in some of the mining operations in the Territory, it may be said that such partial failures are incident to all mining regions, particularly in the early operations of a new region. Montana is particularly exposed to delays of success from its remoteness from machine shops, where the machinery used may be altered and repaired to suit the exigencies constantly arising. But all these hindrances to immediate and full success in quartz mining operations will soon be removed. The placer mines are not yielding so much as at some former periods. Many new localities have been discovered, and large sums have been expended in conducting water to favored localities, and there is every reason to believe that the placers will, the coming year, yield many more millions to the hardy toilers who have labored so faithfully and successfully in securing this "golden harvest."....Hon. John How, Treasurer of the St. Louis and Montana Mining Company, is in receipt of the following telegram from one of the resident directors in Montana:

FLINT CREEK, MONTANA, October 25, 1867.

To JNO. HOW, Treasurer:

Have amalgamated thirty-five (35) tons ore. Result in silver and gold bullion two hundred and nine pounds avoirdupois. Cost, $25 per ton. JAMES STUART.

The St. Louis *Republican* remarks: "The coin value of silver being $18.85 per pound (avoirdupois), the yield is equivalent to $3,959.65 coin, or $5,515.15 currency. Deducting the cost (875 in currency), there will remain a net profit of $4,640.15. Certainly a handsome profit for three days run of a ten stamp mill, especially as we are informed by L. C. Garnier, Profs. Swallow, Reyes, and others, who have been on the ground, that there is enough ore out and in sight to keep the mill running from two to three years."

MISCELLANEOUS.

New Mexico.

The difficulty of obtaining details from New Mexico induces us to make the following extracts from an interesting letter to the Santa Fe *Gazette*, descriptive of the country surrounding Pinos Altos, so rich in minerals of all kinds: In May, 1860, a Colonel Snively and a party of California miners, came to this region and discovered gold near the present site of the town of Pinos Altos, in what is known as Rich Gulch. In June of that year, people commenced coming to work in *placers*. In December, 1860, there were, say, fifteen hundred here from Chihuahua, Sonora, Texas, and from California. They, at that time, averaged to the hand, some ten or fifteen dollars per day. Other gulches were discovered during the Fall and Summer of 1860. In December, 1860, the first quartz mine was discovered by Mr. Thomas Mastin with a party of prospectors. This vein is called the Pacific Mine: it runs through the hill, or mountain rather, which constitutes the "divide" of the continent—and has been worked on each slope of that mountain. In the Spring of 1861, this mine was bought by Mr. Virgil Mastin, a brother of the discoverer, and it was successfully worked during the rest of that year. During 1861 the Apache Indians made formidable raids on the stock of the miners, and nearly stripped them of the means to prosecute their labors. The breaking out of the rebellion also had the effect to induce many to leave. A few only held on, and amongst them was Mr. Virgil Mastin, who foresaw the future development of the great wealth and promise of this region. Not much was done in discovering or in testing the merits of new leads from 1861 to 1864, when still another attempt was made to work the Pacific

Mine—and a few other mines which Mr. Virgil Mastin had meantime discovered. These latter lodes are known as the Atlantic, Adriatic, and Bear Creek. The work commenced on these had been prosecuted but a short time when the Apaches again came and stripped the miners of their stock. This caused another suspension of nearly all further labors until 1866, when Mr. Virgil Mastin, M. Samuel J. Jones, M. Joseph Reynolds, Mr. J. Edgar Griggs and Mr. Jacob Amberg, organized a company under the name and style of "The Pinos Altos Mining Company," under charter granted by the Legislature of New Mexico. This company has three lodes, viz: the Pacific, Atlantic, and Bear Creek. Its stock consists of four hundred shares, at five hundred dollars par value per share, which stock is owned as follows: Virgil Mastin has one hundred and twenty; Samuel J. Jones has sixty; Jacob Amberg has one hundred; Joseph Reynolds has sixty, and J Edgar Griggs has sixty. None of the shares are for sale. The company has now a steam mill in the town of Pinos Altos which drives three batteries of five stamps each. When all three batteries are kept at work night and day they crush twenty tons of ore in twenty-four hours. The average yield of ore extracted from the Pacific mines is from eighty dollars to one hundred and fifty dollars per ton. Ore *can be selected* from this lead which will yield one thousand dollars per ton. This mill is not, as yet, crushing ore taken from the Atlantic and Bear Creek lodes; but ore taken from these lodes has been reduced in arastras and has yielded as much as ore taken from the Pacific. The Atlantic lies east of Pinos Altos, one and a half miles; the Bear Creek half a mile to the south of the town and the Pacific one and a half miles to the west. On this latter lead or lode a tunnel has already been drifted seven hundred and thirteen feet. Its eastern terminus is on the Atlantic slope of the mountain. Its western terminus, when the tunnel is completed, will debouch upon the Pacific slope. Then the tunnel will be sixteen hundred feet long. Midway, it passes under the crest of the mountain, where an air shaft is run down which will enter the tunnel one hundred and twenty-one feet below the summit. This tunnel is six and a half feet high, and is five feet wide. A tram way is laid down upon its floor—and on this is a small car which carries out the ore as fast as it is mined by the workman drifting in the tunnel. It costs to extract ore from the mine not to exceed six dollars per ton. It costs, delivered at the mill in town, eight dollars and fifty cents. This covers all expenses, including extracting, hauling, &c., &c. The actual expense of crushing this ore is about three dollars per ton. The Pacific vein is from three to eleven feet wide, and is inexhaustible. It contains gold, silver, and in places, a small proportion of copper. The company has nearly completed furnaces for the smelting of the silver ores taken from this mine. These will yield in dollars per ton, more than the gold ores heretofore alluded to. The cost of smelting silver ores per ton will be twenty-five per cent. less than the costs of crushing the gold ores. There are now, within a radius of six miles from the center of the town of Pinos Altos, over six hundred lodes of gold and silver, as I have been informed by good authority. Several of them prospect equal to those mentioned. The population in October, 1866, at the time of renewing operations by the Pinos Altos Mining Company, did not exceed sixty miners. They now number from eight hundred to one thousand, and have erected and are now building some very comfortable dwelling-houses, and some commodious stores at Pinos Altos. Here provisions can be bought at reasonable rates.....The country is well timbered, and the climate unsurpassed in salubrity by any within our boundaries between the two oceans. Pinos Altos is something over five thousand feet above the sea level. It is built exactly on the summit of the great chain of mountains dividing the waters falling into the Atlantic from those falling into the Pacific. As the town increases in size it will be built down either slope.....Freight can be hauled to Pinos Altos from Mesilla, Las Cruces, and Fort Selden, for two and a half cents per pound. The information I have here given has been gathered from personal observation, and from the statements of those who live at Pinos Altos and who are persons of credit. It is my opinion that before six years shall have passed away, there will be a town at or near Pinos Altos larger than the city of Denver. It may be doubted if there is on the known surface of the earth an equal number of square miles on which may be found as many, as rich and extensive, veins of the useful as well as of the precious metals as at and near Pinos Altos, New Mexico. As soon as a few mills demonstrate the real value of even a few of the mines, capital will be sure to drift in that direction to develop them all. It is possible that mills for crushing ores, if erected in large numbers, will, for convenience of water, be built down on Bear Creek, or even at the nearest point upon the Gila; but the ores are so rich they will pay the transportation upon a railroad to the Gila river. The whole distance is "down" grade. .....The Old Placers.—Fours years ago, Gov. Connelly, Col. Howe Watts, Major DeForest and myself, paid a visit to the mines known as the Old Placer mines, twenty-seven miles from Santa Fe, New Mexico. We then, after actual inspection, came to the conclusion that the mines themselves were very rich and could be developed with profit; but we were also as well convinced that the management of the mines owned by the "New Mexican Mining Company," was intrusted to unskillful and incompetent heads. A want of system, and a want of an intelligent direction of even what little work was then doing—it was painful to contemplate. We all became fully satisfied that the company was wasting much valuable time, and throwing away a good deal of money to no purpose. Within a year, however, all this has been changed. Now, under a skillful superintendent who devotes all his time and his ability to demonstrate the truth that the mines which the company had opened, are mines that will yield a large profit on the capital invested, the aspect of the affairs of that company has completely changed and the stock is gradually acquiring a firm and healthy tone in the market. Within the last few days I have repeated my visit to the *Old Placers* in company with Mr. James L. Johnson, one of the leading merchants of New Mexico, and the results of my observations and calculations may not be uninteresting to the people of the Territory. With regard to the extent of the mines *already opened* by the New Mexican Mining Company, it may be fairly stated that they are inexhaustible. This company owns a tract of mineral lands ten miles square. Within this area the outcroppings of mines not developed at all are abundant, and are of the most promising character. Rising out of the centre of this property are what are known as the Gold Mountains. In the lapse of ages these mountains have been grooved by the action of the elements, and by the mechanical abrasion of boulders forced downwards by ancient torrents, until an inclined plain or *talus* is formed all around their base, which is rich in what is known as placer gold, broken off from the upper crests of gold-bearing ledges, which must still have existence beneath the present surface. Some of these ledges have been discovered, as before stated, by their out croppings, and amongst these are those now operated upon by the company. Many are now hidden by soil. These veins have a general direction from north to south. Now it is therefore reasonable to conclude, from the evidence given of immense wealth in gold in the talus or inclined plain just described, that eventually when these mountains are tunneled from east to west, these lodes will all be cut—when they can be successfully attacked far below the surface, and drifted in upon along their entire course. There can likewise be no doubt that water can be brought from the Pecos river, and be used as water is used in California to wash, by hose, the most of this auriferous soil and drift which lies around the base of the mountains. In doing this the summits of many new lodes will be uncovered; and when the hydraulic operations no longer remunerate, the water will come there to be used in the far more profitable and steady business of crushing ores from the quartz leads thus brought to light, and from the quartz leads already known which lie above the level to be reached by this water..... The following is the result of five small runs through the mill of the New Mexican Mining Company, made by Dr. Michael Steck, the present Superintendent:

22 tons yielded per ton	$	20.62
16 " " " "		36.00
16 " " " "		22.00
6 " " " "		33,331.03
3 " " " "		42.00

That is to say sixty-three tons produced $1,707.64; or an average of $27.10 per ton. Much of this ore was refuse ore, which was crushed mainly to get it out of the way. The regular yield of average samples of ore, at the lowest estimate will be $30 per ton. This, in a year's run, Sundays included, would give $98,550. Now throw off twenty-five per cent. to cover salary of Superintendent, delays for the Sabbath, and delays for repairs, and for unforeseen contingencies, and you throw off $24,637.50, which will leave $73,912.50. Now deduct from this expenses of running the mill for a year, as is shown by the recapitulation of annual cost, which is $34,575; and you have clear profit $39,337.50. This will give on the investment for one year on cost of mill, which is $15,000—two hundred and sixty-two per cent. For it must be recollected that all other expenses have already been deducted. This does not include the profits on the sale of goods. Two other mills of the same capacity can be erected at two other springs in the hollow where the present mill now stands, and one mill can be erected near what is known as the "Cunningham Mine." This should be done when the income of the company will be increased to $157,350, which is four times the sum cleared by one mill. This does not include the profit of the store, and yet this gives six per cent. per annum on a capital of two millions six hundred and twenty-two thousand five hundred dollars. By having the "cleaning-up" in each mill occur on a different day from the cleaning-up in any other mill, one Superintendent could direct the business transacted by all four mills. The ore is inexhaustible, even in the mines already opened. Other mines on this ten miles square can be opened, and there are *known* springs where still other mills can be erected. By a system of tanks and reservoirs to collect and hold surface water, any number of mills can be run, and all this without making any calculations for water coming from the Pecos. When there is so much material to be worked upon with profit, to have but one mill is the same as if you had a boundless supply of cotton, and worked upon it with a factory running fifteen spindles. I have taken some little pains to prove to you by figures, that here within sight of the city of Santa Fe, there is a fund of wealth which bespeaks well for the future prosperity of this part of New Mexico. I have written nothing of the New Placers, which are known to be equally as rich and extensive; nor have I alluded to the auriferous region in the mountains to the west of Mr. Maxwell's Ranch, on the Cimarron river. Should I have time to visit and properly examine these two last-named placers, it will give me pleasure to let you know the result of my observation. When the vast mineral, pastoral, and even agricultural resources of New Mexico are well understood, it will require no prophet to foresee that she will one day, not far distant, occupy a proud position as one of the States of the great Republic.

JAMES H. CARLETON.

Pacific Coast Mining Review.

From the San Francisco Mercantile Gazette, October 9th.

Mining affairs on the Pacific coast, during the past year, have assumed a more substantial and permanent condition, as a source of national wealth, than they ever before attained, and probably in no like period since the organization of the State has this desirable condition of affairs been as much promoted in California as during the past nine months. There are a variety of causes which have tended to produce this effect, the most prominent being the great improvement introduced in the processes for saving the precious metals, which adds greatly to the profits of mining, and the unprecedented accumulation and low rate of money in Europe. After nearly twenty years experience, with the remarkable amount of bullion in the treasuries of all the European nations, the larger portion of which being the product of this State, the permanence or richness of the mines of California can no longer be debatable questions. While the detection and exposure of the frauds perpetrated on capitalists, in selling them worthless "claims," has made such frauds impossible, with ordinary prudence on the part of purchasers, we see the result of the confidence this improved state of affairs has engendered, in the number of valuable mines recently sold to European capitalists, or for which they are negotiating. The success of such purchasers is of infinitely more importance to the State than the success of the sellers in disposing of them. Every such sale that turns out satisfactorily to the buyers increases the development of the mines, while every fraud perpetrated upon them retards the material progress of the State, by depriving it of the advantages of increased capital. With millions of money going a begging for borrowers, at two per cent. per annum in England, what better field for investment offers than the gold and other mines in California? It is not possible to number the mines in this State that would be profitable to work with capital at treble that rate of interest, were it obtainable. The active commerce and growing manufactures of the State absorb all its capital, on interest ranging from 12 to 14 per cent, leaving none for mining ventures at less than 24 to 30 per cent., rates that no enterprise can successfully stand up under. With telegraphs and steamers connecting the two countries, English capital is as much under the control of its owners in California as it was in the mining districts of that country less than a quarter of a century ago. These facts appear to be appreciated, if we may judge by the number of investments being made. As these foreign purchasers prefer thoroughly developed mines, they offer inducements to owners of really valuable claims to develop them, and aid in driving "wild-cat" stock out of the field. Another noticeable feature in the progress of mining on this coast is the increase in the number of deposits of minerals, other than quartz, which contain gold. The Quail Hill mine, in Calaveras, the Harpending mine, in Placer, the talc mines in Placer, Sierra, and several other counties, are familiar illustrations of such deposits. The profits derived from working these mines are very large, though the per cent. of bullion in the mineral is quite small. But the economy with which it can be extracted, the enormous proportions of the deposits, and the convenience with which they can be worked, being generally near the surface, causes it to be more profitable to work such ores, though only containing from $3 to $5 per ton, than many quartz ledges, the rock from which yields from $20 to $30 per ton. During the past month another important discovery of this character has been made at Quartz Prairie, Placer county, where a company of miners seeking for a quartz ledge on a rich placer claim cut through a stratum of black cement (as they describe it,) of a peculiar appearance, nearly as soft as clay, which is astonishingly rich in gold. As was the case on the Harpending mine, the miners threw this valuable substance away, while drifting through six feet of it, because it did not look like "gold rock," but accident revealed its richness and made their fortunes. The Green Emigrant mine, located a short distance to the south of this discovery, is also a remarkably valuable deposit of this class, the gold being found in a greenish talcose slate. Nearly $100,000 worth of the metal has been taken from this mine in the present year. It is scarcely possible to believe that these peculiar and valuable deposits are confined to the few localities where they have been found. The simultaneous and wide-spread causes, which there are reasons for believing formed the gold, forbid the idea of its formation being confined to a few isolated spots. It is far more probable that intelligent search will discover a number of such deposits. It must be remembered that the discovery of gold on this coast has been the result of accident to a remarkable extent. Accident first revealed it to Marshall in the mill-race at Coloma; accident led to its discovery in quartz; accident led to the discovery of the Harpending mine; to the Table Mountain deposits; to the auriferous talc, and now to this "black clay." Science has had nothing to do with these discoveries. None of the scientific experts who have been in this State have ever discovered anything of importance. Their services have been of great value in explaining the composition of minerals others have found: but to accident alone is due the discovery of the various formations in which gold has been found. Another important subject, intimately connected with the present activity in mining, is the great attention paid to extracting the metals from their ores. When it is admitted that not more than 60 per cent.—probably not nearly so much—has heretofore been extracted, the loss of the remainder appears amazing, if we take the product of the State since 1848 into consideration: 40 per cent. of $1,000,000,000 lost for lack of skill to save it! A better state of things has been introduced, and it is quite within bounds to state that the quantity of bullion obtained by re-working tailings and sulphurets exceeds $3,000,000 for the present year in California alone, and is very large among the silver mines of Nevada, while the improvements in crushing and amalgamating have increased the product in the mills fully 10 per cent. over what it was three years ago.

QUARTZ MINING.—This branch of mining, though producing fully the average quantity of bullion, has been less successful in some of the old-established localities than formerly. The Allison Ranch, and several important mines at Grass Valley, have ceased operations from a variety of causes—the Allison owing to litigation among its owners. It is estimated that it will require an expenditure of $100,000 to pump the mine out and put it in the same condition that it was before it stopped. The Eureka, North Star, Empire and other famous mines in the district, continue to yield as largely as ever. The mines in Mariposa county are again in operation. The Princeton mill has been running for several months past on rock, which has averaged $20 per ton. Very important discoveries have been made within the past few months in Inyo county, on the border between California and Nevada, between Owen's Valley and the Sierra Nevada. Several extensive districts have been laid out. The Cerro Gordo, Kearsarge, Fish Springs, Alabama and Inyo are the most important at present. The ores are principally auriferous copper and argentiferous lead, rich beyond precedent, and in quantities almost fabulously large. At present most of the miners in this district are Mexicans, who have extracted many thousands of dollars worth of bullion from the ores by means of crude furnaces they construct out of materials on the ground. Important discoveries have also been made in Klamath, El Dorado, Sierra, Calaveras, Plumas and other counties, which promise to open wide fields from which to gather the precious metals.

PLACER MINING. This branch of mining continues to add greatly to the supply of bullion that reaches market. While the old and conveniently reached placers have been exhausted, new and extensive diggings have been discovered in less accessible localities. It is safe to state that one-third of the present gold product of the State is obtained from placer mines—without including the cement mines, which require machinery for crushing. Yet we hear ill-informed persons assert that the placer mines are "worked out." In nearly all the northern counties placer mining is as active and prosperous as at any time during the past fifteen years. In Siskiyou, Plumas, Butte and Sierra counties, new districts have been found of great extent and value, while in Tuolumne, Calaveras and Nevada counties the product of the placers quite equals that of quartz.

CEMENT MINING.—This branch of mining has assumed great importance within the past three or four years, and has been exceedingly productive during the present year. Occupying a position between quartz and placer mining requiring both machinery and large quantities of water and a large expenditure of both money and labor to work, these mines are not as accessible to the unskilled, poorer class of miners as the placers; but to capitalists they offer the greatest inducements for investment. Generally containing large tracts of land, with the "pay dirt" in deposits hundreds of feet deep, when once fairly opened, the expense of working is trifling in comparison to the returns. But it generally costs large sums to open them. The Blue Gravel mine at Smartsville, Yuba county, occupied nine years and involved an expense of nearly $200,000 to open, but within six months after it was opened it returned all it had cost, and has since returned such an enormous revenue that one of the fortunate owners, J. P. Pierce, in 1866, paid taxes on the largest in the State. Other mines of the same class in Nevada, Yuba, Plumas, Butte and other counties, present similar features of handsome rewards for well-directed perseverance. To form an idea of the magnitude of the workings on these claims, we give the following particulars: The Eagle mine at North Bloomfield, Nevada county, a mine probably unknown outside of the district in which it is located, uses 500 inches of water daily, at a cost of nearly $25,000 annually, conveys it through 1,500 feet of iron pipe from one to three feet in diameter, employs from 40 to 50 men, and is at present preparing to let off a blast, to break up the cement, consisting of 18,750 lbs. of powder. The Cherokee mine, in Butte county, has been worked for the last fifteen years when there was water. In 1866, in fifty days, it yielded $54,000. In Sierra county, near La Porte, there is a gravel mine which uses 3,000 inches of water daily, runs its tailings through a tunnel which required ten years to cut, and cost $160,000, employs 50 men, and pays enormously. Such mines give an idea of the costs and profits of cement mining.

SILVER MINING.—The Silver mines of California are located in Alpine, Sierra and Inyo counties. Though giving promise of being of great value, their development is attended with many obstacles from which gold mining is comparatively exempt. The metal is rarely found in its ntive state, being generally combined with substances more or less difficult to separate it from, requiring costly machinery, great skill and considerable scientific knowledge, and is scarcely ever as profitable as mining for gold, as silver ores yielding $25 to $30 per ton are less profitable to work than gold rock containing but $10 per ton. With all these disadvantages, there is but little doubt that the silver mines of California will, at no very distant day, form an important source of wealth. The mines in Nevada have been exceedingly productive during the present year, with every indication of a steady increase for the future.

COPPER MINING.—Owing to the general depression in the value of copper in the markets of the world, the mines of this metal on this coast have, with few exceptions, ceased operations. The Union, at Copperopolis, and the Alta, at Del Norte, are the only mines at present shipping ores. The table of exports will show how greatly this interest has suffered through the excessive cost of freight and labor.

COAL MINING.—This branch of mining is very active, without

any special feature to demand an extended notice. The quality of the Mount Diablo coal continues to improve as the workings increase in depth, and is extensively used for steamers, factories, and for domestic purpases. The product of the mine exceeds 10,000 tons per month. The supply from the northern coast continues liberal—several new localities adding to the quantity.

QUICKSILVER, BORAX, &c.—The supply of these substances being entirely governed by the demand, we have little to report concerning them.

LEAD.—The manufacture of this metal in San Francisco will soon be conducted on an extensive scale, the erection of the necessary works having been commenced. The supply of ores is very abundant, generally containing sufficient silver to pay for transportation and extraction.

IRON.—The manufacture of iron has been commenced. The Oswego works, in Oregon, made the first pigs on the 24th August last, the quality of which has been pronounced superior by the foundaries in this city.

MARKET REVIEW.

Gold and Silver Stocks.—At the mining board, Consolidated Gregory sells regular at $5 70@5 80; Gunnell, $1 25; Corydon, 50c.; New York and Eldorado, $1 50; Quartz Hill, $1 10.

	Bid.	Asked.		Bid.	Asked.
Alameda Silver	— 30	1 50	Liberty Gold	— —	5
American Flag	— 58	75	Manhattan	105 00	— —
Atlantic and Pacific	— —	1 00	Midas Silver	— —	2 00
Bates & Baxter Gold	— —	1 00	Montana Gold	— —	20
Benton Gold	— 50	70	New York	— 80	90
Bobtail Gold	— —	3 00	New York & Eld'o	1 55	1 60
Bullion Consolidated	— —	1 00	Nye Gold	— —	5
Columbian G. & S.	— 7	12	Owyhee Mining	— —	15 00
Combination Silver	30 00	— —	People's G. & S. of Cal	— 10	25
Consolidated Gregory	5 80	5 85	Quartz Hill	1 10	1 15
Corydon Gold	48	53	Reynolds Gold	— —	4
Edgehill Mining	3 75	4 00	Rocky Mountain Gold	— 30	35
Gold Hill	— —	4 00	Seaver Gold	— —	—
Gunnell Gold	1 15	1 30	Smith& Parmelee Gold	3 55	3 60
Gunnell Union	— —	45	Sensenderfer	— —	—
H'n G. & S. bs	— —	87	Symonds Fork Gold	— —	1 00
Harmon G. & S. bs	— —	14 00	Texas Gold	— —	12
Holman	— 8	12	Twin Riv. Sil	50 00	75 00
Hope Gold	— 10	30	Vanderburg G	— —	75
Kipp & Buell Gold	— —	45	Yellow Jacket	— —	— —
La Crosse Gold	51	55			

Copper Stocks may be quoted as follows:

	Bid.	Asked.		Bid.	Asked.
Caledonia	....	10 00	Hilton	....	1 00
Canada	....	50	Isle Royale	....	6 00
Central	....	26 00	Knowlton	....	4 00
Charter Oak	....	3 00	Mendota	1 00	....
Davidson	70	74	Ogma	50	....
Evergreen Bluff	....	5 00	Rockland	—	7 00
Gardner Hill	1 20	1 50			

Petroleum Stocks.—Buchanan Farm sells at 48c. regular. The quotations are:

	Bid	Ask'd.		Bid.	Ask'd.
Bonnehoff Run	$3 00	3 50	National	2 00	5 00
Brevoort	40	50	N. Y. and Allegheny	3 25	3 75
Buchanan Farm	47	49	Oil Hole Creek	70	75
Bliven	....	....	Rynd Farm	10	17
Central	75	1 05	United Pet. Farms	10	20
Clinton Oil	1 20	1 45	United States	2 50	3 00
Excelsior	....	15	Union	1 75	....
Manhattan	....	10			

Miscellaneous Stocks.—Quicksilver, 17½; Pacific Mail, 142¾; Atlantic Mail, 116; West. U. Tel., 50¾; Pittsburgh, 80¼; New York Central, 111¾; Erie, 71½; Reading, 95½; Michigan Southern, 78¼; Northwestern, 46¾; same preferred, 62¾; Rock Island, 94¾; Adams, 67@68; American, 65@67; United States, 68@69; Wells, Fargo & Co., 48@48½; Merchants' Union, 28¾@29; Walkill Lead, 41; Rutland Marble, $5 00.

Government Stocks.—In government little is doing except for the ten forties, which are wanted on foreign orders.

U. S. 6s, 1867	138	@—
U. S. 6s, 1868, coupon	—	@138
U. S. 6s, 1881, regular	111⅛	@111⅞
U. S. 6s, 1881, coupon	112	@112¼
U. S. 6s, 5-20s, 1862, regular	104¾	@105
U. S. 6s, 5-20s, 1862, coupon	108⅛	@108¾
U. S. 6s, 5-20s, 1864, coupon	105⅛	@105¼
U. S. 6s, 5-20s, 1865, coupon	106⅛	@106¼
U. S. 6s, 5-20s, c. July, 1865	107⅛	@107⅜
U. S. 6s, 5-20s, July, 1867, coupon	107⅛	@107⅜
U. S. 5s, 1871, reg	116	@117⅛
U. S. 5s, 1871, coupon	119	@—
U. S. 5s, 1874, reg	108	@—
U. S. 5s, 1874, coupon	110¾	@—
U. S. 6s, 1874, end'd coupon	108	@—
U. S. 10-40s, regular	100	@—
U. S. 10-40s, coupon	101	@101⅛
U. S. 7-30s, June, large	105¾	@105¼
U. S. 7-30s, 500's and 1,000's	105⅞	@105¼

Foreign Exchange continues very dull, and rates are ⅛@¼ lower. Some drawers decline to name a rate, but prime 60 days' sterling is scarcely saleable at 109½. We quote:

London, (prime bankers') 60 days'	109⅜@109½
London, (prime bankers') sight	109⅞@110
London, prime commercial	— @—
Paris, (bankers') long	5.17½@5.16¼
Paris, (bankers') short	5.15 @ 5.14½
Antwerp	5.20 @ 5.17½
Swiss	5.20 @ 5.17½
Hamburg (bankers')	36⅛@—
Amsterdam (bankers')	41⅛@—
Frankfort (bankers')	40⅞@41
Bremen (bankers')	78¾@79
Berlin (bankers')	72 @72⅛

Gold 139.

Petroleum.—Crude is dull and heavy. Refined in bond is lower. We quote as follows: Crude (40@47 gravity) in bulk, per gallon, 12½@13½c.; do. (40@47 gravity) in barrels, 18@19c.; refined in bond (110 test) prime light straw to white, 27@27½c.; do. do. (110 test) standard white, 28@28¼c.; do. do. (110 test) prime white, 29½@31c.; residuum, per barrel, $3@3 62.

THE SLATE TRADE.

NEW YORK, NOV. 6, 1867.

The Roofing Slate is very active, the greatest difficulty now being to find means of transporting the Slates to market. The railroads are not able to bring them forward as fast as they are required. The yield of Vermont Slates for October has been larger than for any previous month. The Western market is rather dull for this season of the year, while the Southern market is active. The large stock of Welsh Slates taken to New Orleans in the early part of the year has been greatly reduced, but at prices that cannot leave any profit to the importers.

Vermont purple,	1st	quality, per	square	$11 00@12 00
" "	2d	"	"	10 00@11 00
" green,	1st	"	"	11 50@12 50
" "	2d	"	"	10 50@11 50
" red,	1st	"	"	12 50@13 50
" "	2d	"	"	11 50@12 50
Pa. blk & d'k blue,	1st	"	"	10 50@11 50
" "	2d	"	"	9 50@10 50

PRICES DELIVERED. PER SQUARE

On cars or boat at Buffalo	$11 50	per square.
Delivered in Cleveland	12 50	"
" Dayton	13 00	"
" Cincinnati	13 50	"
" Indianapolis	13 50	"
" Chicago	13 50	"
" St. Louis	14 00	"
" Louisville	14 50	"
" Detroit and Toledo	12 75	"

Intermediate, 75 cents per square less.
Red, $4 per square more.
New York Red, same as Purple.
NEW ORLEANS.—$19@20 per square.
CHARLESTON, S. C.—$15@16 per square.

THE IRON TRADE.

NEW YORK, NOV. 8, 1867.

Domestic.—The iron market this week is dull. But little is doing, while the prospect of an improvement is not very clearly defined. There have been no sales of American. In Scotch Pig we notice the sales, in small lots, of 400 tons, which includes about all that has been done during the past week. Rails are very quiet. There is a slight decrease in prices of American No. 1 and of Scotch Pig. In manufactured iron the market is stagnant, prices remaining steady. No change is expected until the new year, when the cash Southern trade is expected to produce a beneficial influence.

Foreign.—The English iron trade market participates somewhat in a general depression. Prices of pigs stand, but not so firm—Cleveland and Welsh particularly manifesting weakness. Foreign trade has slackened. In Staffordshire the trade is not very lively. Last month the total exports reached no less than 17,878 tons. In Swedish iron the demand is not quite so active. In Scotch Pig, however, there has been more animation than for some time. From France we hear only a suspension of iron production, and a paralysis in manufactured iron. From Belgium, although more varied, the news has a similar tone. During the first eight months of this year the imports of Pig into France were 98,799 tons, or only 2,000 tons less than in the corresponding period of 1866.

WEEKLY STATEMENT OF NEW YORK IMPORTS.

The following table shows the quantity and value of iron imports at the New York Custom House, for the week ending and including Nov. 1, 1867:

	QUANTITY.	VALUE.
Iron, Hp., tons	74	$3,664
Iron, Pig, tons	1,478	24,727
Iron, R. R., bars	....	....
Iron, Sheet, tons	214	16,199
Iron, Tubes	....	....
Iron, other, tons	1,991	66,957
		$111,547

BOSTON IMPORTS OF PIG IRON FROM JAN. 1st TO NOV. 24, 1867

	1867.	1866.
From Great Britain, tons	29,021	18,174
Coastwise ports	8,092	11,886

Lehigh Valley Iron Trade.

The following table shows the amount of Pig iron transported over the Lehigh Valley Railroad for the weeks ending Oct. 26 and Nov. 7:

From	W'k ending Oct. 26.	W'k ending Nov. 2	Total from Oct 5, 1866.
Carbon Iron Co	205	450	1,035
Lehigh Valley Iron Co	160	180	590
Thomas Iron Co	915	735	3,350
Lehigh Crane Iron Co	355	305	1,530
Allentown Iron Co	685	720	2,570
Robert Iron Co	290	280	1,095
Glendon Iron Co	170	220	1,530
Other shippers	150	160	950
Total	2,930	3,350	12,950

Marquette, Michigan, Iron Trade.

The following are the receipts of ore and pig iron at Marquette up to, and including Saturday, October 26, 1867, by the Marquette & Ontonagon Railroad:

IRON ORE.

	Week	Total.
Pitts & L. Ang. Fn Co.	737	51,199
Edwards' Mine	525	4,477
Cleveland Iron Co	1,076	25,956
Marquette Iron Co	84	5,894
Lake Sup. Iron Co	2,810	104,321
New England Iron Co	242	9,041
Washington Iron Co	874	22,716
Jackson Iron Co	....	139
Ore to local furnaces	1,155	24,026
Total iron ore	7,270	257,763

PIG IRON.

	Week.	Total.
Morgan Fn Co	144	5,937
Greenwood Iron Co	113	5,101
Bancroft Iron Co	119	2,612
Collins Iron Co	151	4,155
Michigan Iron Co	187	4,084
Iron Cliffs Co	....	57
Total, pig iron	710	21,046
Total Ore and Pig	7,980	278,809

Shipments of Iron and Hardware to the United States from Liverpool.

The following are the shipments of iron and hardware to the United States from the port of Liverpool, for the week ending Oct. 19th:

IRON, CHAINS AND ANCHORS.—Boston 5 tons chains, New York 2 tons chains, San Francisco 38 tons chains 2 tons anchors.

IRON, HARDWARE, PKGS.—Boston 16, Galveston 5, Mobile 8, New York 51, Savannah 1, San Francisco 48.

IRON, BAR AND BOLT, TONS.—Boston 340, New York 86, San Francisco 199.

IRON, HOOP, TONS.—Boston 2, New Orleans 4, New York 41.

IRON, CASTINGS, TONS.—Charleston 2, Philadelphia 9, San Francisco 3.

IRON, PIG, TONS.—New York 250.

IRON, PLATE, TONS.—San Francisco 49.

IRON, ROD, TONS.—Boston 25, New York 25.

IRON, SHEET, TONS.—Boston 7, New York 2, San Francisco 66.

STEEL, TONS.—New York 322, Philadelphia 6, San Francisco 2.

LEAD, PIG, TONS.—Philadelphia 27.

MACHINERY, LBS.—Boston 1,070, New York 2,375, Philadelphia 2.

SMALLWARES.—Boston 1 c, New York 14 c.

TIN PLATES, BOXES.—Boston, 1,760, Charleston 325, New Orleans 10, New York 8,576, Philadelphia 25, San Francisco 3,650.

Market Prices.

NEW YORK, NOV. 7, 1867.

DUTY.—Bars, 1 to 1¼c. per lb.; railroad, 60c. per 100 lbs.; boiler and plate, 1¼c. per lb.; sheet, hand, hoop and scroll, 1¼ to 1¾c. per lb.; pig, $9 per ton; polished sheet, 3c. per lb. Payable in gold.

Anthracite, No. 1, best	$42 00@44 00		6 to 12x¾ to 5-8	105 00
" " 2x, dry	39 00	40 00	Common iron	
" Grey Forge	35 00	38 00	¾ to 2 in. round and sq	95 00
Scotch Pig, from vessel	39 00	41 00	1 to 6 in. wide by ⅛ to 1 th.	95 00
Charcoal, coal blast	50 00	67 00	1 to 6 in. wide x ¼ to 5-16 th.	105 00
Old Wrought scrap, fm yd	47	....	⅛, 9-16, 5-8, 11 16, r'd & sq.	105 00
" " " fm. vsl	44	....	2½ to 3 inches	105 00
English rails, gold	52 50	53 00	Refined iron.	
American " at works	78 00	80 00	¾ to 2 in. r'd and sq	100 00
Nails and spikes	5 75	....	1 to 6 in wide x ¾ to 1 th.	100 00
Old Railroad Iron	50 00@	....	3½ and 3½, round and sq	115 00
Hoops, ¾ per ton	$190 00		Rods—5-8 and 11-16, round & sq., per ton	105 00
" ¾ "	160 00		½ and 9-16 round & square	110 00
" ⅞ "	150 00		7-16, round and square	120 00
" 1 "	140 00		⅜, " "	125 00
" 1⅛ "	137 50		5-16, " "	130 00
" 1¼ to 2 per ton	137 50		¼, " "	135 00
Scroll Iron—⅝x14 per ton	180 00		3-16, " "	165 00
" 12 "	170 00		Horse Shoe Iron	127 50
" 10 "	160 00		Band—1 to 6 in. x 3-16 to No. 10	132 50
" 3-16 "	150 00		1 to 6 in. x No. 11 and 12	132 50
" ¼ "	140 00		Ovals and half Rounds.	
" ⅜x14 "	160 00		¾ to 1½	127 50
" 12 "	160 00		⅝ & 11-16	132 50
" 10 "	150 00		½ & 9-16	137 50
" 3-16 "	140 00		Nail Rods, per lb.	
" ¼ "	135 00		"	9@10¼c
" ⅝x14 "	150 00		Norway Shapes	8¾c
" 12 "	150 00		Spring Steel	10¼c
" 10 "	140 00		Tire " ⅞ to 1¼x¼ & 5-16	10¾c
" 3-16 "	135 00		Toe Cork Steel	10¾c
" ¼ "	132 50		Sleigh Shoe Steel	10¾c
Swed'h Fn, ord'y sizes, ⅞ to 2 in. sq., per ton	155 00		Plow Steel—6 to 14x¼ to ⅜	11c
1¼x⅜ to ½ and ¾ in sq	160 00			
1¼x⅜ to ⅝	165 00			

[From Boston Shipping List.]

BOSTON, NOV. 6, 1867.

Swedish—common ass'd	$150@155	Scotch Pig, No. 1,	....
English—com	95 100	Gartsherrie	$45@46
do refined	105 110	No. 1, other brands	43 45
do sheet, per lb	6½@10c.	American, No. 1	42 48
Russia, sheet	19@20c		

Pittsburgh.

(Pittsburgh Commercial, Nov. 2, 1867.)

PIG-IRON AND BLOOMS.—The market during the week, has undergone no particular change. The demand for certain descriptions was brisk, whilst others were neglected. Favorite brands of forge iron were scarce; and as the production of that description of iron is scarcely equal to the consumptive demand, prices were firmly maintained. In regard to common and inferior irons, the demand was not so active. The supply was ample—not being in favor with consumers, and in some instances slight concessions were made in order to effect sales. The sales of the various descriptions were as follows: Anthracite, 707 tons; bituminous coal smelted from Lake Superior ore, 1,060 tons; charcoal, 120 tons; coke, 200 tons; total, 2,087 tons, against 2,905 tons sold the previous week, a falling off amounting to 815 tons in pig-iron. Blooms—sales this week, 80 tons; last week 120 tons, a falling off of 40 tons.

ANTHRACITE.

40 tons Neutral	$40 00	6 mos.
120 " Josephine No. 3	42 00	cash.
100 " Gray Forge	40 00	cash.
120 " Gray Forge	43 00	5 mos.
40 " Gray Hard	41 00	6 mos.
30 " Red Short Forge	42 00	cash.
42 " No. 2 Foundry	45 00	cash.
50 " No. 1 Foundry	47 00	cash.
30 " Neutral Forge, extra	44 00	4 mos.
150 " No. 1 Foundry	47 00	4 mos.
50 " No. 3 Forge	40 00	6 mos.
30 " White	38 50	6 mos.
20 " No. 2 Foundry	44 00	4 mos.

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORE.

195 tons Mahoning Valley Forge	private	terms.
65 " Mahoning Valley Forge, No. 1 Foundry	$46 50	4 mos.
30 " Mahoning Valley Forge, No. 2 Foundry	45 50	4 mos.
20 " Mahoning Valley Forge, low grade	40 00	4 mos.
30 " Gray Forge	42 00	4 mos
10 " Gray Forge, favorite brand	43 00	4 mos.
200 " Gray Forge	40 50	cash.
200 " Medium Gray Forge, at furnace	37 25	cash.
100 " Gray Forge	41 00	4 mos.
50 " Gray Forge medium	40 00	4 mos.
160 " Forge, from Native and Lake Superior ore	41 00	4 mos.

CHARCOAL.

50 tons Cold Blast	$56 00	4 mos.
25 " Foundry, H. B	55 00	4 mos.
15 " Foundry, H. B	53 00	4 mos.
30 " Foundry, C. B	53 00	4 mos.

COKE.

200 tons Alleghany Coke	$38 00	time

BLOOMS.

10 tons No. 1 Juniata	$100 00	4 mos.
10 " " 2 Juniata	98 00	4 mos.
50 " " 1 Juniata	private	terms
10 " " 1 Juniata	$100 00	30 d's

IRON BARS AND NAILS.—We note an improvement in the demand for iron and nails at previous quotations, but still it cannot be said that the business is up to the anticipation of manufacturers. The depression in trade has been so long, and so severe, that anything like a restoration to its previous state of vigor and activity, cannot be expected to take place at once. The mills running are not at present accommodating any great amount of stock, and should there be a general river rise there would no doubt be a demand for all kinds of iron and nails, that would leave the warehouses entirely bare of stock, and perhaps unable to supply the wants of the lower river trade.

(Specially reported for the AMERICAN JOURNAL OF MINING by Messrs. Addy, Hull & Co.)

CINCINNATI, November 6, 1867.

PIG.—The supply of metal continues limited, and yet there is a strong pressure to sell. The effect of this is a tendency to easier rates, and concessions in price are more frequently offered in order to effect sales.

	Cash per ton.
Hanging Rock H. B. Mill	$44@46
" " H. B. Foundry	47 50
" " Cold Blast	56
" " Car Wheel	58
Tennessee, Cold Blast	$60@61
Missouri	52 55
Jackson (stonecoal) Foundry	46 48
Blooms	110 120

MANUFACTURED.

The irregularity in prices, alluded to in our last report, continues. Rates are cut ¼ to ½c. though card prices are nominally unchanged. Trade is only moderate, not active.

	B.	C.C.
Flat Bar	4¾ to 5¾	6 to 6½
Horseshoe Iron	6¼ " 6¾	7½ " 8
Heavy Band	5½ " 5¾	6¾ " 7
Round and Square	4¾ " 8¾	6 " 10
Saddle-tree	6 " 6¾	7½ " 8
Hoop and Light Band	6 " 10½	7½ " 11½
Oval Iron	5½ " 6	6½ " 7¾
Half Oval and Half Round	5½ " 6¼	6¾ " 7½
Angle Iron	6¼ " 7¼	7½ " 8½
T and Hollow Rail Iron	6¼	8
Saw mill Track	6¼	8
Sheet Iron, 10 to 17	6	9
" " 27	7	10
Boiler Plate, 3-16 to 5-16	—	8

LONDON, Oct 18, 1867.

(From the London *Mining Journal*.)

Bars, Welsh in Lond'n	£6 10 0	@—	To arrive	10 5 0	10 10 0
Ditto to arrive	6 10 0	....	Do. railway, Wales	£5 10 0	@£6 0 0
Nail rods	7 0 0	7 10 0	Do, merch. Tyne or " Stafford in Lond.	7 10 0	8 10 0
Bars	7 10 0	9 10 0	Pig, No. 1, in Clyde	2 1 9	3 1 0
Hoop	8 10 0	9 12 6	Do. f.o.b. Tyne, Tees	2 9 6	....
Sheets, single	9 5 0	10 0 0	Do. Nos 3, 4, f.o.b. do	2 6 6	2 7 0
Pig, No. 1, in Wales	3 15 0	4 5 0	Railway chairs	5 10 0	5 15 0
Refined metal, ditto	4 0 0	5 0 0	" spikes	11 0 0	12 0 0
Bars, common, ditto	5 15 0	6 0 0	Indian Charcoal Pigs in London	7 0 0	7 10 0
Do. Swd. in London	10 5 0	10 10 0			

STEEL.

Swed. kgs, (rolled)	14 5 0	....	Swed. in faggots	16 0 0	....
" (ham'd)	15 10 0	15 15 0	English, spring	17 0 0	23 0 0

Iron Items.

The amount of black-band iron-ore shipped over the Mill Creek Railroad for the week ending Oct. 26th, 1867, was 131 11 tons; previous, 3,795 11 tons; total, 3,927 03 tons.

The manufacture of steel tires for locomotives, formerly a branch of trade done only in England, is now accomplished successfully at several places in the United States, one of the largest factories opened being located at Nashua, New Hampshire. Philadelphia, we believe, had the honor of being the first place in America where steel locomotive tires were made.

The project for the erection of steel works at Schuylkill Haven, says the Pottsville *Standard*, moves but slowly, on account of the obstructions of a few men who are unwilling to act unless they can dictate to all others interested, and who, it is intimated, have more interest in certain land speculations than in the general prosperity which the establishment of the works would cause in the community.

The puddling mill of the Bethlehem Rolling Mill, at South Bethlehem, produced in one week lately, 305 tons of puddle iron. At the "top and bottom mill" 470 tons were turned out in the same time. At the rail mill 475 tons in the same time. This extraordinary amount of labor was accomplished in one week without extra outlay of force of hands. Three hours, we may add, were lost in this time by changing of rolls. This is believed to be the largest amount of iron ever turned out by any mill in this valley, or perhaps in the United States.

The Austrian Railroad Company's report for 1866-7 gives some interesting details on the mines and iron works under the company's control, which will repay the reader's comparison with the production of our mines. At Dognacska and Szaska, which are favorably circumstanced as regards metallic production, the working has been continued, and has given results comparable to those of preceding years. A very well-sustained activity prevailed throughout last year in the company's iron works. The production of the Dognacska works was 2,987 tons of various charcoal made pig. The production of the Anina, where only a single furnace was maintained in blast, was 5,778 tons of coke-made pig last year; 283 tons of castings were also turned out last year. At Reschitza, where all branches of the service have nearly attained their maximum activity and production, the results attained last year were of a satisfactory character. The three blast-furnaces produced last year 10,145 tons of pig of various kinds, and the foundry delivered 1,998 tons of castings. The production of the iron manufactory last year was: Merchants' iron, 2,502 tons; plates of every description, 2,338 tons; worked iron, 203 tons; rails, 1,835 tons; tires, 779 tons; mining rails, 404 tons; miscellaneous articles, 393 tons; total, 8,424 tons.

We clip the following items concerning the Lake Superior mines from the *Journal*: At the Lake Superior the surface work necessary for next winter's operations is now complete. The new machinery for pumping and hoisting is all on the ground, and will be placed and in operation during next month. The turbine water-wheel has been started at Section 16, and drives the pump very effectively, keeping the opening quite free from water and with considerable power to spare. The total product of the Lake Superior mine for September will not vary much from fourteen thousand tons. Work progresses admirably at the Cleveland mine. New and important discoveries of rich beds of ore are being constantly made, satisfying all concerned of the inexhaustible wealth which lies hidden beneath the surface. The new saw-mill is on its way. The company have over one hundred thousand feet of logs, and propose hewing out at least half a million during the winter. A very promising bed of soft hematite ore has been opened at the New England mine, of which about seventy tons a day are now going forward to Capt. E. B. Ward's furnace at Detroit. It is of excellent quality and gives every encouragement of an extensive character. The Pittsburgh and Lake Angeline company have a party of men at work exploiting a recently discovered ledge of ore on Section 21, about two miles south of the present location on Lake Angeline. The show is said to be good. We learn that the Champion furnace will go into blast next week. The last of the machinery has arrived and been placed. Steam has been raised and the machinery tried, everything working well. The Champion will start on a mixture of three-quarters magnetic ore from the new mine on Section 31, and one-quarter hematite from the Lake Superior mine.

The following additional items concerning the Michigan furnaces are quite full and interesting: Shipments from the Jackson for the season, up to and including the 30th of October, are reported as follows:

	Gross tons.
By Peninsula Railway	105,027
To Collinsville	4,464
Total	109,491

This does not include the product of Gray's mine, which is being worked under a lease to the Iron Cliffs company, and from which is supplied the ore for the Pioneer furnaces—not less, perhaps, than 10,000 tons. A new company, called the North American, contemplates the erection of a new furnace at the west entrance of Grand Island harbor, early in the spring. The company has about 20,000 acres of land on the Island and the mainland, and there is no doubt of the erection of one or more furnaces at an early day. Grand Island begins to assume considerable importance, and the growth of an important commercial town at some point on the bay is only a question of time. Shipments from the Edwards mine, up to last report, via Marquette, 4,500 tons. Operations at this mine the present season have been mainly confined to improvements looking forward to future results. When Captain Mitchell gets everything into working order, we may expect a more pleasing array of figures

from the Elwards.....The shipments from the Cleveland are about equally divided between the two competing lines of railway, and the total figures up to this time cannot vary far from 86,000 tons. This is better than might have been expected, considering the great amount of money and labor that has been expended on improvements during the season.....Nearly 105,000 tons, not including the amount shipped to local furnaces, may for the most part be properly credited to the Superior ; 225,000 net tons for the year is a foregone conclusion.....The new Champion mine continues to expand, and new and gratifying developments are every day being made. Enough is now known to place it on a par with the Washington, and no doubt is entertained of its ultimately becoming an immensely valuable property.....The product of the pioneer furnaces for the month of September was 526 tons. This, however, does not, by any means, show all she is capable of doing, as one of the stacks was out of blast during a portion of the month. The two stacks are good for about 200 tons a week.....The stack of the Deer Lake is already up to a height of twenty feet, and will be completed before cold weather can put a stop to operations. A new road is being constructed to the Lake Superior mine, by which route the company propose to get their supplies.

THE COAL TRADE

NEW YORK, Nov. 8, 1867.

Domestic.—The market this week manifests about the same activity as last week. The demand for the smaller sizes, especially for stove, is very brisk. Foreign coal is scarce and in good demand. Prices and freights remain very steady, with the exception of foreign freights from Newcastle, which have made a sudden advance. Transportation is somewhat diminished by reason of the difficulty of procuring boats

The following table shows the quantity of Coal shipped over the principal coals for the week ending November 2, 1867, compared with that shipped the same time last year :

	1866.		1867.		
	WEEK.	TOTAL.	WEEK.	TOTAL.	DECREASE.
Phil. & Reading R.R.	60,001	3,231,738	63,289	2,874,961	356,777
Schuylkill Canal	30,467	1,164,949	29,072	894,505	270,444
Lehigh Val. R. R	32,161	1,999,782	46,856	1,751,862	152,080
Lehigh Canal	35,556	943,711	32,954	876,322	67,389
Del & Hudson	31,050	1,160,394	38,319	1,214,091	53,697
Scranton North	11,098	363,988	15,614	410,116	46,128
Scranton South	22,804	907,734	20,975	1,055,640	147,906
Penn'a Coal Co. Rail	18,602	387,178	18,721	709,338	322,160
" " Canal	828	22,241	830	20,105	3,136
Wyoming North	.....	97,708	.....	61,265	36,443
Wyoming South	12,670	420,379	12,742	315,583	104,796
Shamokin	4,605	471,975	11,206	406,732	65,243
Trevorton	81	45,711	1,521	45,976	265
Short Mountain	3,671	86,730	3,794	67,470	19,260
L. V. Co	.....	38,625	2,209	56,901	18,276
Broad Top	.....	234,677	5,054	200,483	34,194
Williamsto'n	.....	58,608	4,268	106,082	47,473
Total	264,394	11,237,428	307,426	11,067,432	.....
1867	.....	11,067,432	.....	.....	.....
Decrease	.....	169,996	.....	.....	.....

Schuylkill Coal Trade.

BY RAILROAD & CANAL FOR WEEK ENDING NOV. 7, 1867

	Railroad.	Canal.
St. Clair	28,302	.....
Port Carbon	7,640	.....
Pottsville	941	.....
Schuylkill Haven	16,526	.....
Auburn	3,637	.....
Port Clinton	6,240	.....
Total for week	62,289	29,072
Previously this year	2,811,672	865,433
Total	2,874,961	894,505

Lehigh and Mahanoy Coal Trade,

For week ending Nov. 2, 1867.

NAMES OF SHIPPERS.	WEEK	TOTAL.
Trenton Coal Co	.....	1,794 02
Mount Etna	748 04	4,972 03
Mahanoy Coal Co	375 04	13,038 10
Delano Colliery	.....	5,061 02
Glendon Coal Co	377 17	15,151 07
Rathbun, Stearns & Co	.....	25,431 01
E. S. Silliman	2,150 08	93,458 10
McNeal Coal & Iron Co	2,370 10	88,964 04
Knickerbocker Coal Co	1,409 04	48,474 19
Thomas Coal Co	1060 03	29,708 06
Williams & Herring	120 05	10,583 01
Shamokin Valley Coal Co	.....	4,202 06
New Boston	1,371 04	24,906 05
Caledonia	392 01	1,427 02
S. W. Knevals	376 09	376 09
Other shippers	.....	42 10
Total	10,581 13	367,301 17
Corresponding week last year	4,954 01	297,966 14
Increase	5,627 12	91,335 03
Decrease	.....	.....

Lehigh Coal Trade.

SHIPPED FOR THE WEEK ENDING NOVEMBER 2, 1867.

SHIPPERS.	CANAL. Week Tons.	CANAL. Total Tons.	RAILROAD Week Tons.	RAILROAD Total Tons.
FROM MAUCH CHUNK				
Lehigh Coal & Navigation Co	.....	.....	.....	.....
Summit Mines	12,860	317,438	.....	.....
Room Run Mines	.....	1,314	.....	.....
John Laubach & Co	.....	352	.....	.....
Other Shippers	.....	.....	.....	.....
Total	12,860	319,104	.....	.....
FROM S. M. REGION.				
John Conuery	.....	.....	.....	1,534
W. T. Carter & Co (Colerame)	552	12,256	1,182	76,115
Spring Mountain Coal Co	685	6,811	2,665	116,261
Thomas Hull & Co (N. Y. & Lehigh Co)	274	11,060	1,766	87,252
Honey Brook Coal Co	2,001	39,177	2,230	116,339
German Pennsylvania Coal Co	695	9,626	827	34,068
Beaver Meadow (D. W.)	.....	.....	51	1,574
Other Shippers	.....	.....	10	191
Total	4,209	78,931	9,039	433,340
FROM MAHANOY REGION.				
McNeal Coal and Iron Co	283	4,928	2,922	87,843
Knickerbocker Anthr. Coal Co.	....	1,582	961	45,439
North Mahany Mines (Mahanoy Col. now B. & C.)	152	1,236	496	12,223
Delano do	....	1,140	....	33,872
Primrose Mines (Rathbun, Stearns & Co.)	....	....	....	25,625
Walter, Brothers & Co. (now Bedford & Cox)	....	82	....	....
Mount Etna Coal Co	383	3,012	240	1,780
Trenton Coal Co	....	184	....	1,009
Glendon Coal Co. (Glendon Colliery)	....	95	336	15,085
Thomas Coal Co	....	1,677	1,077	28,292
Williams & Herring	....	189	495	10,325
E. S. Silliman	....	....	1,916	91,650
East Boston	....	....	....	505
New Boston Coal Co	....	....	984	24,548
Shamokin Coal Co	....	....	....	4,202
Caledonia M. & M	....	....	395	1,950
Other Shippers	....	....	5	122
Total	818	14,381	9,604	382,307
FROM HAZLETON REGION.				
A. Pardee & Co. (Hazleton)	1,937	65,941	4,224	123,322
G. B. Markle & Co. (Jeddo)	1,666	47,902	1,743	103,005
Wm. S. Hatsey & Co. (Mt. Pleasant)	160	4,690	474	9,560
Buck Mountain Coal Co	1,855	38,606	1,681	49,947
Sharpe, Weiss & Co. (Council Ridge)	947	30,202	2,036	66,975
Coxe, Brothers & Co. (Cross Creek)	575	10,989	316	16,625
Ebervale Coal Co	1,241	32,860	1,410	56,794
Stout Coal Co	896	19,681	262	27,344
Harleigh Coal Co	854	20,662	1,138	36,162
Ashburton Coal Co	....	1,582	....	432
East Sugar Loaf	....	....	3,925	124,895
Upper Lehigh C. Co	450	13,215	1,752	46,879
Highland	790	13,509	879	20,248
Mount Hall	....	180	160	1,147
Woodside	258	844	94	1,550
Latimer	66	292	315	2,625
Other Shippers	....	....	....	10
Total	11,700	302,161	20,416	687,186

FROM WYOMING REGION.				
Newport Coal Co	....	3,533	....	783
Warrior Run Mining Co	....	2056	437	10,972
Parish & Thomas	469	11,231	...	38,815
New Jersey Coal Co	258	7,539	302	14,431
Lehigh & Susquehanna Coal Co	....	2,903	....	11,245
Germania Coal Co	247	7,721	225	12,224
Franklin Coal Co	....	5,567	....	8,763
Audenried Impr'v't & Coal Co	341	8,096	....	7,788
Valley Coal Co	....	189	....	384
Wilkes Barre Coal and Iron Co	1,811	71,769	1,732	54,349
Baltimore Coal Co	....	15,398	....	30,186
Union Coal Co	....	5,323	825	8,756
Wyoming Coal & Transp'n Co	....	6,989	241	18,011
Everhart Coal Co	....	2,648	....	1,904
Morris & Essex Mutual	....	....	262	7,445
H. B. Hillman & Co	....	....	....	7,029
Bowkley, Price & Co	....	....	....	1,745
T. F. Hunt & Co	....	....	....	774
John Horton	....	473	....	....
Mineral Springs	....	....	....	4,301
Consumers	....	....	314	1,060
Plymouth Coal Co	....	....	1,639	5,756
Enterprise Colliery, J. H. Swoyer	....	....	266	1,224
Washington Coal Co	....	....	51	776
West Pittston	....	....	49	99
Other Shippers	256	10,357	....	....
Total	3,564	161,748	7,794	248,927
Grand Total	32,954	876,822	46,856	1,751,862
Total 1866	35,556	943,711	32,161	1,599,782
Decrease	2,602	67,389	....	....
Increase	....	....	14,695	152,080

Cumberland Coal Trade.

For the week ending Nov. 3, 1867.
From the Alleganian.

COAL TRADE BY RAILROAD.—Statement of Coal shipments over the Baltimore and Ohio Railroad for the week ending Nov. 3, 1867 :

From C. and P. R. R.	Tons.
Consolidation	3,620 08
American Company	1,432 09
Borden	1,041 14
New Hope	214 04
Midland	92 13
Hampshire	.....
From Eckart R. R.	Tons.
C. C. and I. C.	1,119 09
Spruce Hill	.....
Blaen Avon	.....
Total	6,126 16

No report from Piedmont mines.

By C. & O. CANAL.—There were dispatched from the port of Cumberland, during the last week, boats laden with 13,141 15 tons of coal, forwarded by the following companies

American	3,686 06
Borden	986 14
Central	4,058 17
Consolidation	1,430 04
Cumb Coal & I	1,785 09
Hampshire & Baltimore	1,194 05
Total	13,141 15

Coal transported over the Cumberland & Pennsylvania Railroad, during the week ending October 26th, and for year :

	To Canal	To B. & O. R. R
For week	12,743 03	15,097 11
For year	311,394 06	459,144 12

During the corresponding period of 1866, there were delivered to the Baltimore & Ohio Railroad 437,857 09 tons, and to the Chesapeake & Ohio Canal 219,149 17 tons.

Imports of English Coal to France.

The imports of English coal into France in the first eighteen months of this year compare as follows with the imports in the corresponding months of 1866 and 1865 :

Months.	1865.	1866.	1867.
January	125,106	152,405	199,312
February	114,259	132,732	174,375
March	122,906	150,201	154,846
April	139,549	141,073	172,410
May	155,940	171,345	201,585
June	129,178	171,293	178,171
July	142,884	155,156	182,012
August	137,167	168,369	167,482
Total	1,065,989	1,242,493	1,395,992

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

At New York, November 8, 1867

Shuylkill R. A., choice	$5 75@	$6 00	Lehigh Broken	5 25	....
" Ordinary	5 25	5 50	" Egg	5 25	....
" W. A. Lump	5 25	5 50	" Stove	5 50	....
" Steamboat	5 25	5 50	" Chestnut	4 20	....
" Broken	5 25	5 50	Wilkesbarre Lump	5 25	....
" Egg	5 25	5 50	" Picn & Egg	5 25	....
" Stove	5 25	5 50	" Stove	5 50	....
" Chestnut	4 00	4 25	" Chestnut	4 75	....
Lehigh White Ash Lump	5 37	...			

SPECIAL COALS.—DEALERS' QUOTATIONS

Diam'd Vein R. A., Sch'kill	....	....	New England Red Ash	$5 25	....
Locust Dale W. A., "	....	....	Broad Mountain	5 25	....
Honey Brook " Lehigh	5 50	....	Wyoming	5 00	....
Harleigh " "	5 50	....	McNeal Co	5 50	....
Spring Mt'n " "	5 50	....	George's Creek (Balt.)	5 25	....
Sugar Creek " "	5 50	....	" " (George'n)	4 75	....
Ashburton " "	5 50	....	Locust Mount'n (Reppher)	550	....
Fulton White Ash	5 50	....	Duncan Red Ash "	6 00	....
Stout "	5 50	....	Wharre Coal & Iron Co	5 25	....
Old Co's " "	5 50	....	New Burgh Orrell Gas Coal	9 00	....
Buck Ridge W. A., Sh'kin	5 00	....	Despard Gas Coal	9 00	....
H. Heils, E. S'kin, Locb.	5 50	....			

Dealers in these Coals may be found in our advertising columns

At Philadelphia, November 8, 1867.

Lehigh Lump and S'mb'l.	$5 00@	....	Schuylkill Chestnut	2 75	....
" Broken and Egg	5 00	....	Locust Mount Lump and Steamboat	4 25	....
" Stove	5 00	....	" Broken	4 25	....
" Chestnut	3 75	....	" Prepared	4 25	....
Schuylkill R. A. Prepared	4 25	4 50	" Chestnut	2 87	....
" Chestnut	2 75	....	Lorberry Coal	4 25	....
" W. A. Lump and Steamboat	4 25	....	Shamokin	4 75	....
" Broken	4 25	....	Franklin, (Lykens Valley)	4 75	....
" Egg and Stove	4 25	....	Broad Top	4 75	....

Scranton Coal at Elizabethport, November 8, 1867.

(Corrected weekly by D. L. & W. R. R. Co.)

Lump	$4 25@	....	Egg	5 00	....
Steamer	4 50	....	Stove	5 50	....
Grate	4 75	....	Chestnut	4 40	....

Prices for Pittston Coal at Newburgh, November 8, 1867.

(Corrected weekly by Penna. Coal Co.)

Lump, per ton of 2240 lbs.	$4 70@	....	Egg " " "	4 70	....
Steamer, " " "	4 70	....	Stove " " "	4 90	....
Grate " " "	4 70	....	Chestnut " " "	4 20	....

70 cents additional to New York.

Lackawanna at Rondout, November 8, 1867.

(Average contract prices for year.)

Lump	$4 90@	....	Stove	5 45@	....
Steamer	5 00@	....	Chestnut	4 50@	....
Grate	5 20@	....	Pea	4 20@	....
Egg	5 50@	....			

Lehigh Coal at Elizabethport, November 8, 1867.

Lump	5 50@	....	Chestnut	4 50	....
Steamboat and Brokenc	5 25	....	Stove	5 50	....
Egg	5 25	....			

At Baltimore, November 8, 1867.

Wilkesbarre & Pittston W. A. by cargo or car	$5 50@	$5 75	From wharf or yard, 75c. to $1 per ton additional.		
Lykens Valley R. A. by cargo or car	5 75@	6 25	Retail, del'd, per 2,240 lbs	7 00@	7 75
Sunbury & Shamokin R. or W. A. by cargo	5 50	5 75	George's C'k and Cumberland f. o. b. at Locust P't for shipping	4 85@	5 00

At Havre de Grace, Md.

Wilkesbarre or Pittston, W. A., on board	$4 85@	5 10	Sunbury or Shamokin, R or W. A., on board	....	@5 25
			Lykens V'y, R. A. on b'd.	5 60@	5 85

At Georgetown, D. C.

George's Creek and Cumberland, on board	$4 25@	4 50			

Wilkesbarre Coal at Elizabethport, November 8, 1867

(Corrected by Wilkesbarre Coal & Iron Co.)

Lump	$4 50	....	Egg	5 00	....
Steamer	4 50	....	Stove	5 25	....
Broken	4 75	....	Chestnut	4 50	....

Ten cents additional on shipments from Jersey City.

Prices of Provincial Coals.

[CORRECTED WEEKLY BY LOUIS J. BALLOU, JR., 43 PINE STREET.]

Duty $1.25 per ton.

Block House (on board)	$2 00	gold	Little Glace Bay "	1 87½	"
Gowrie "	1 75	"	International Co's "	1 75	"
Lingan "	1 75	"	Slack Coal, R. H., "	75	"
Sydney "	2 25	"	" L. G. B.,	1 00	"
Pictou "	2 25	"			

Prices of Foreign Coals.

Duty $1.25 per ton.

Corrected weekly by PARMELEE BROS., 32 Pine Street, N. Y.

Liverpool Gas Caking	$10 00	Liverpool House Cannel	19 00@20 00
" " Cannel	13 50	" " Orrel	16 00@18 00

Per ton 2240 lbs., Ex. ship.

PRICES FROM YARD :

Liverpool Orrel, screened	$18@20	Liverpool Cannel, scr'd.	20 00@22 00

per ton 2000 lbs. delivered.

Coal Freights.

(Corrected Weekly.)

From Newburgh.

RIVER.	Co.'s BOATS.		EASTERN.	
Albany	60@	.. ..	Boston	1 75@	.. ..
Barrytown	35	.. ..	Bridgeport	1 12½	.. ..
Catskill	35	.. ..	Bristol	1 50	.. ..
Cold Spring	30	.. ..	Dighton	1 50	.. ..
Coeymans	45	.. ..	Fall River	1 45	.. ..
Coxsackie	40	.. ..	Mystic	1 30	.. ..
Fishkill Landing	20	.. ..	New Haven	1 12½	.. ..
Greenbush	50	.. ..	New London	1 25	.. ..
Haverstraw	45	.. ..	Newport	1 45	.. ..
Hudson	35	.. ..	Norwalk	1 12½	.. ..
New York	70	.. ..	Norwich	1 40	.. ..
Nyack	50	.. ..	Pawtucket	1 65	.. ..
Peekskill	40	.. ..	Providence	1 50	.. ..
Poughkeepsie	25	.. ..	Stamford	1 12½	.. ..
Rhinebeck	30	.. ..	Stonington	1 25	.. ..
Saugerties	35	.. ..	Warren	1 45	.. ..
Sing Sing	50	.. ..			
Stuyvesant	40	.. ..			
Tarrytown	50	.. ..			
Troy	55	.. ..			
West Point	50	.. ..			
West Troy	55	.. ..			
Yonkers	55	.. ..			

From Rondout.

Boston	$2 00	New London	1 40
Bridgeport	1 25	Newport	1 60
Bristol	1 60	Norwalk	1 25
Dighton	1 55	Pawtucket	1 70
Fall River	1 60	Providence	1 60
Mystic	1 40	Salem	2 00
New Haven	1 25	Stamford	1 25
Norwich	1 50	Stonington	1 40

From Elizabethport.

Albany	$ 90@	New London	1 25@
Boston	1 75	Newport	1 40
Bridgeport	1 00	New York	55 60
Fall River	1 40	Norwalk	1 00
Hartford	1 50	Norwich	1 30
Hudson	1 00	Pawtucket and towing	1 50
Lynn		Portland	1 60
Middletown	1 25	Portsmouth	2 15
New Bedford	1 45	Providence	1 40
Newburyport	2 00	Salem	1 80
New Haven	1 00	Taunton	1 40

From Baltimore.

To Philadelphia	$1 40@	Boston	2 25@ 2 50
New York	2 10	Sound Ports	2 25@ 2 50
Washington	1 10	Norfolk	1 00@
Annapolis	75	Richmond	1 30@

From Washington, N. J.

Hackettstown	$ 58	Iron Dale	$ 1 10
Waterloo	81	Dover	1 24
Stanhope	90	Paterson	1 80
Port Morris	99	Pompton	1 80
Rockaway	1 22	Bloomfield	1 80
Denville	1 33	Newark	2 09
Boonton	1 44	Belleville	2 10
Little Falls	1 70	Communipaw	2 10
Drakesville	1 08	Jersey City	2 20
Dickerson's Basin	1 11	New York	2 20

From Port Richmond, Philadelphia.

Amesbury Point	2 75	— —	Newport	1 75	— —
Boston	2 25	— —	New Haven	1 75	— —
" bridges	03	— —	Norwich	1 75	— —
Bangor	2 25	— —	Norwalk	1 75	— —
Candridgeport	2 25	— —	Newburyport	2 40	— —
Chelsea	2 25	— —	Portland	2 30	— —
Danversport	2 25	— —	Pawtucket	2 05	— —
East Cambridge	2 25	— —	Provincetown	2 60	— —
Fall River	1 75	— —	Providence	1 80	— —
Galveston, Texas	6 00	— —	Portsmouth	2 50	— —
Gloucester	2 25	— —	Roxbury	2 25	— —
Lynn and dis	2 25	— —	Salem	2 25	— —
Medford	2 25	— —	Salisbury	2 75	— —
New York	1 30	— —			

From Georgetown or Alexandria.

To Philadelphia	$1 50	— —	Boston	2 75	2 50
New York	2 15	— —	Sound Ports	2 25	2 50

Provincial Freights.

Currency.

Sydney to N. Y.	$2 75
Sydney to Boston	2 75
Lingan	3 50
Lingan to Boston	3 00
Coal Bay	2 75
Cow Bay to Boston	2 75
Cow Bay to Portland	2 50
Big Glace Bay	3 87
Little "	2 50

Foreign Freights.

New Castle and Ports on Tyne	22s 6d coal.
Liverpool	15s@17s 6d coal

Rates of Transportation to Tide Water, June 1, 1867.

PHILADELPHIA & READING RAILROAD.

From Pottsville to Philadelphia	$2 17
" " Port Richmond	2 07
" " New York, drawback off	2 80

SCHUYLKILL NAVIGATION.

From Pottsville to Philadelphia	2 08
" " New York, drawback off	2 88

Wyoming Valley Canal.

	Tolls.	Freights.
From Wilkesbarre to Havre de Grace	67c.	$1 55
" " Columbia	69	1 20
" " Middletown	67	1 10
" " Harrisburg	65½	1 05

OTHER AVENUES.

From Mauch Chunk to Philadelphia, Canal, including unloading	1 88
" " Philadelphia, via North Penna Railroad	2 00
" " Elizabethport, via N. J. Central Railroad	2 03
" " Port Johnson	2 10
" " New York	2 47
" " New York via Del. Div. and Raritan Canal, including unloading	2 67
" " New York via Morris Canal	2 20
" " Hoboken via Morris & Essex Railroad	2 10
" " New York	2 20

From Elizabethport to Buffalo, via New York Canal, a distance of about 450 miles—freight, $2 62, toll 78 cents..... 3 40

The shipping expenses at Elizabethport and Port Johnson vary from 25 to 30 cents.

Coal Items.

We are informed, says the Mauch Chunk *Democrat*, that Judge Hamburger, Thomas John, A. L. Mumper, and Geo. Meyers, have leased of T. Hull, Esq., about five hundred acres of coal lands known as his western tract, upon which they have already commenced operations. Three basins, it is said, run the entire length of the tract.

The coal fields of Arkansas are found to be very rich.

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NEW YORK, SATURDAY, NOVEMBER 9.

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ON-DIT ABOUT MINERALS.
ALL SORTS.

BLAST FURNACES WITH CLOSED FRONTS.

It is not always that we feel sufficiently attracted by the inventions described and illustrated on our first page, to make them the subject of editorial remark; but the improvement in blast-furnaces, which we lay before our readers this week, is something of extraordinary importance. It has never before been described in America, and, indeed, the date of the European publication, giving an account of it, is October, 1867. The novelty, simplicity and attested practicability of this invention will at once recommend it, we hope, to the iron-masters of this country.

Blast furnaces with closed front—i. e., without tymp—have been long known, but in limited application, including only the use of charcoal-fuel, and very pure ores, giving little slag. Great coke or anthracite furnaces could not be thus constructed, because of the difficulty of removing the slag; and a closed front, combined with continuous slag-discharge, was deemed impracticable, on account of the impossibility of preserving the proportions of the discharge-aperture. This difficulty is overcome by the invention of LURMANN—a continuous discharge of slag, completely under the control of the workman. Practical iron-masters will appreciate, at a glance, the advantages of this plan, as they are briefly sketched on our first page this week. We propose to hint, with equal brevity, the disadvantages of the system now in vogue, so that both pictures may be viewed at once. Our readers will see that this is one of those inventions which, although they are not trumpeted abroad as the greatest discoveries of the age, do nevertheless, with quiet certainty, affect and reform the industry of nations.

The present blast furnaces, for the production of iron, possess in front an extension of the hearth, some four or five feet long, two or three feet broad, and two or three feet high, called the fore-hearth. This is separated from the hearth by the tymp, and closed in front by the dam-stone. The under edge of the tymp is from ten to eighteen inches lower than the upper edge of the dam-stone; and in running the furnace, the slag in the hearth must be forced by the blast-pressure to creep, as it were, under the tymp, and then mount over the dam, before finally escaping. The reasons of this arrangement we shall not stop to discusss. Its evils include the following:

1. The oscillations and undulations of the slag in hearth and fore-hearth, occasioned by its flow, under variable blast-pressure, cause it to attack, and finally to decompose, the fire-brick of the hearth, the tymp and the fore-hearth.

2. The repair of the damage thus effected requires an interruption of the smelting process after every tapping of iron; and, in order to start the slag running again under the tymp, a laborious cleaning of the fore-hearth is necessary, during which the blast, and consequently the activity of the smelting must be diminished. These circumstances occasion, in many furnaces, a daily interruption of smelting for one or two hours, during which time nothing is produced. The loss thus occasioned is two-fold; since not only the production ceases for a certain time, but the charge "sets" or condenses during the stoppage, and the process is sensibly retarded until the renewed blast has again loosened the materials.

3. The blast-pressure is limited by the weight of the slag in the fore-hearth. Increasing the blast, to obtain a higher temperature, is likely to blow out the slag and fuel through the fore-hearth, thus necessitating stoppages and repairs.

4. The tap-hole for iron is usually in the dam-stone, four or five feet from the hottest part of the furnace; and in case of a chill, it is difficult to open.

5. The fore-hearth occupies one quarter of the circumference of the furnace, so that it is impossible to arrange the tuyeres systematically.

6. These and other irregularities and inconveniences of the present process require constant watchfulness and a high degree of skill on the part of the workmen, to say nothing of the multiplicity of tools and the quantity of material kept on hand for repairs.

A glance at the description of LURMANN'S patent slag-discharge-piece shows that it is calculated to obviate all these evils, by removing the difficulties which have hitherto prevented the use of that *desideratum*, a close-fronted iron blast-furnace. It is not the object of this article to puff the invention referred to. Ordinary prudence, indeed, dictates that we should not express too positive and sweeping an opinion as to its merits, since nothing is more hazardous than to judge of metallurgical apparatus by drawings and descriptions alone. To praise this construction now, would be merely to echo, without strengthening, the endorsement which it has received from the officials of the works where it has been introduced, in Germany. Without a doubt, however, its claims are so reasonable and important as to challenge attention at once; while the ease with which it can be applied to an ordinary blast furnace, *in operation*, should secure an immediate experiment of its merits in this country. We may express, in conclusion, our satisfaction that the American patent is in honest and skilful hands. Mr. ASMUS bears a high reputation in the United States, where he has for years resided; and his career as a mining engineer in the Lake Superior region, where he introduced very important mechanical improvements, is highly creditable to him.

THE UNION PACIFIC RAILROAD.

The history of this great measure of commerce and civilization has a romance on every page, exceeding in real dramatic interest all that the pen of the novelist can narrate. The sublimity of the calm faith in our national future which inspired the representatives of the people, at the darkest crisis of our history, to project and provide for such a gigantic enterprise, completely overshadows the much-vaunted patriotism of the Roman senator, who, while Hannibal bivouacked on the Campagna, quietly bought an estate in the enemy's camp, and paid the money down. The spirit and endurance with which the great work has been prosecuted, and the means provided at every step, are evidences that the voluntary enterprise of intelligent freemen is equal to undertakings as stupendous as those to the performance of which Pharaohs and Cæsars called their myriads of unwilling slaves. And, finally, the startling rapidity with which the actual labors of construction have gone forward can scarcely be paralleled by anything less than the performance of Aladdin's genius, or the boast of Puck. (Let us call attention here to the important fact, overlooked by the Shakespeare critics hitherto, that although Puck *said* he could girdle the earth in forty minutes, he never really *did* any such thing; and probably spoke like the gentleman who thought he could fiddle, but had never tried!)

But to descend from the realms of fancy and fiction, and contemplate the sober facts: there are five hundred miles of the Pacific Railroad, west of Omaha, now completed; and, considering the amount already accomplished by the Central Pacific Company of California, it is safe to say, that more than one-third of the whole line is now in running order. Under these circumstances, the announcement does not seem unreasonable, that the road will be open to the Pacific in three years. But the abbreviation of the overland transit at present accomplished, is such as to secure to the railroad, in its partially completed condition, an immense and daily increasing business. Already the saving in time, as compared with the Panama route, is more than a week; and the tide of travel is turning in consequence into this new channel. The net earnings of the quarter ending July 31, were more than four times the interest on the mortgage bonds. These statistics show that as a commercial enterprise alone, the railroad is certain to be successful; but there are other aspects of the case no less important. The United States could better afford to build two railroads than undertake one Indian or Mormon war. The average cost of killing a single Indian (as our wars have been conducted,) will build and equip a mile of railroad. In our recent article on "Scalps and Cowcatchers," we pointed out that the steady prosecution and defence of the great lines of communication was the first and most important element in our Indian policy; and this opinion we still hold. We should have more faith in the treaties recently concluded with hostile tribes, had they been negotiated at a different season of the year. The Indians of the plains are always ready to make peace in the fall, and declare war in the spring. Without pausing, however, to discuss the question of their sincerity and good faith in the present instance, we would express our hope and confident expectation that the Pacific Railroad will be pushed forward in future, as energetically and rapidly as hitherto, so that any revival of opposition to it on the part of our naturally noble, but occasionally intoxicated and bloodthirsty allies, may be entirely too late to hinder its successful completion. Swiftly as this great work has advanced, to the vast regions that await its coming, it seems to creep. What will be its effects, in revived industry, extended exploration, distributed comfort and civilization, increased wealth, it is impossible even to imagine. When we consider the achievements of mining enterprise in the west, and bear in mind that they have been accomplished almost without the aid of those means of communication which are ordinarily considered, in these days, essential to industry and commerce, we can scarcely set a limit to the splendid developments of the future, when this great desideratum shall have been supplied.

A MARE'S NEST.

A correspondent of the New York *Herald*, writing from Bennington, Vermont, professes to expose a "gigantic swindle, involving the sum of three hundred and fifty thousand dollars," in the shape of a bogus gold and silver mining company, the property of which was located in Renssalaer County, in this State. The enterprising correspondent who has just discovered this stupendous fraud, dresses up the story with all the accessories known to skillful penny-a-liners, speaking of the treasurer of the company as "a man who passed by the name of Vandercook," and representing him as deceiving all visitors, scientific and professional as well as ignorant, by the ingenious but somewhat threadbare device of scattering auriferous quartz on the ground, and as absconding without paying his debts, after having sold a large amount of stock at par. It is a pity to spoil a story so dramatic; but the fact is too evident, that the talented compiler has expanded, without much regard to accuracy, the material obtained from an old prospectus of the Renssalaer County Company, and added a number of particulars, probably from his own fertile brain. We happen to know that in the autumn of 1866 the parties interested in the enterprise alluded to applied to Messrs. ADELBERG and RAYMOND, mining engineers, of this city, and received from them a report on the property, from which the following is an extract:—

"Like the slates of the coal-formation, and many other similar rocks, these Hudson River strata contain a great deal of iron pyrites, disseminated throughout the rock, and especially in bunches and threads along the lines of cleavage and stratification. This pyrites, or bi-sulphuret of iron, is a product of chemical processes involved in the formation of the rock, and not of any subsequent vein-action, such as the occurrence and filling of fissures from below. It is therefore likely to permeate the whole mass of rock, and not to be concentrated in large deposits of any kind. There are no indications on the property of a definite vein. The small quartz-seams occurring in the slates, and the little pockets of calc spar, as well as the segregations of iron pyrites above alluded to, are common enough in these strata, and afford no reliable prospect to the miner. * * * * Samples of the pyrites have been crushed, roasted, smelted and cupelled under our direction, with the following results * * * * representing a value of about $1 per ton. This is no more than almost any pyrites might yield, and far too little to justify working on a large scale. We are informed that other assays have been made, with much higher results. We do not undertake to explain the discrepancy. It is evident, that an ore which yields widely different results, when examined in small quantities, does not offer any trustworthy basis for extensive operations. The only way to put the matter beyond possibility of contradiction is to extract and reduce large quantities of the rock. This course, which involves considerable expense, we do not advise; since all the observations we have been able to make indicate to us that these slates are without value as a basis for mining operations."

This is very explicit, and shows that educated and experienced engineers were not a moment deceived by the alleged stratagem (if any was practised). This report was regarded as conclusive; the company was soon dissolved, and, so far as we can learn, not a single share of stock was subsequently sold to any one. We are informed that Mr. VANDERCOOK has not absconded, but is at home.

No doubt there was a great delusion in the minds of the gentlemen who confidently expected to find a gold-mine in Rensselaer County; possibly they were deceived by others; but the whole bubble was burst a year ago, though the simple method of an examination by competent experts; and the only novelty in the *Herald's* account of the "gigantic swindle, just discovered," appears to be the embellishment the story has received.

We regret that the public press lends itself to the ignorant superstition that the business of mining is entirely removed from the realm of human judgment and foresight. People's minds seem to oscillate between perfect credulity and utter scepticism, as to the profits of mining; and of the few who know that it is a business in which education and skill *tell*, as they do in any other, fewer still are willing to act on that knowledge. The case we have mentioned, instead of being an instance of the uselessness of experts, (two of whom are said to have examined the "gold mine,") is in reality an illustration of the wisdom of consulting men of acknowledged ability and integrity, before risking capital in dubious undertakings. But for the prompt and clear warning of Messrs. Adelberg and Raymond, the Rensselaer County mines might still be dragging out a sickly existence. There are parties patiently digging for coal in the Hudson River rocks to-day, who would do well to seek a similar means of undeceiving themselves.

ACTIVE AND PASSIVE METALS.

The attention of our scientific readers will doubtless be attracted by the paper of Prof. HENRY WURTZ, read at the last meeting of the Lyceum of Natural History, and giving an account of some newly-discovered properties of the metal aluminium—an abstract of which will be found among our reports of scientific meetings. Those who, like ourselves, were not so fortunate as to hear the paper itself, and the discussion which followed, must await the promised publication in *Silliman's Journal*. It would be manifestly premature to express, in advance of that publication, a decided opinion concerning the theory which the distinguished chemist has linked with his interesting experiments; and we content ourselves with remarking that we are not prepared to find in the phenomena he has observed, novel and beautiful as they are, a sufficient foundation for the notion of a new allotropic modification of aluminium, or the theory of active and passives states, as due to other than mechanical causes. Still less are we prepared to understand in what sense the electro-negative is to be regarded as a passive and the electro-positive as an active condition, or how the interior of a strip of aluminium can be electro-positive, while its surface is electro-negative. Doubtless these points will be ably discussed and explained by Prof. WURTZ hereafter; and we forbear unnecessary cavil.

AMERICAN PATENTS.

It is confidently stated that the number of applications for patents, which was, in 1864, 6,000, in 1865, 9,000, and in 1866, 15,000, will not fall below 25,000 in 1867. It is no wonder that the Patent Office finds it difficult to keep up with so rapid an increase of business. Making the most generous deduction (and a large deduction is necessary) for the useless, impracticable, or already elsewhere discovered inventions included in the above sum total, we still have a record of American ingenuity and skill which may well make us sanguine of the future prosperity of our mechanical and manufacturing industry. As compared with the Old World, America is short of hands, but abundantly blessed in natural resources. It is therefore, by pressing the powers of nature into our service, and substituting machinery for muscle, that we must maintain our pre-eminence among the nations.

DIVIDENDS.

The Bennehoff Run Petroleum Co., 2 per cent on capital stock of company, at 57 Broadway, N. Y., payable on Nov. 15; Central Petroleum Co., at their office, 8 Pine street, N. Y., ten cents per share, payable on Nov. 15th; the Marine Oil Co., Pittsburg, 5 per cent. on demand.

MEETINGS.

Independent Oil Co., at 389 Broadway, N. Y., Nov. 12, annual meeting o stockholders; Consolidated Silver Mining Co of Nevada, at 73 Broadway, Nov 12; Maurose Oil Co, 55 Liberty street, Nov. 15, for the final closing up of affairs.

ASSESSMENTS.

The following assessments are now due: Ophir Silver Mining Co., three dollars per share, in gold; Yellow Jacket Silver Mining Co. one hundred dollars per foot, in gold; and Crown Point Gold and Silver Mining Co., one hundred dollars per foot, in gold.

Scientific Meetings.

POLYTECHNIC BRANCH OF THE AMERICAN INSTITUTE.

STEAM PLOWING—KNITTING MACHINE—GIFFARD INJECTOR—CORN HARVESTER—BILGE-WATER INDICATOR.

The regular weekly meeting of the Polytechnic Branch of the American Institute was held last Thursday evening, Prof. Tillman in the chair. The attendance was very good, completely filling the hall.

Mr. Fisher made some remarks on the feasibility of steam plowing, which he thought was very easy of demonstration. He advocatedsome protective action by Congress, and the providing of a fund for its introduction by the American Institute which would remove it from the hands of mere speculators, to whom its past failure was owing.

Mr. Curtis exhibited the "Bridgeport Family Knitting Machine." This machine knits everything which can be desired by a family, and with an astonishing rapidity. Simplicity and perfection of work are its claims.

Mr. Fisher described the Giffard Injector for feeding water to boilers, Prof. Tillman illustrating it on the blackboard. Mr. Fisher then gave the history of the Injector, which, by means of a jet of stream, forces water into the boiler. The same thing is used in the locomotive to carry the smoke up the chimney. It was Prof. Tillman's opinion that, though very serviceable, the Injector was not as economical as a steam pump.

Mr. Butterworth exhibited a model of his Corn Harvester, which cuts two rows at a time, dropping the corn in gavels of any desired size, is drawn by one horse walking between the two rows, and requires only a driver, being self-operating in all its parts.

Mr. Brevoor explained Shaler's Bilge-Water Indicator, for showing at all times the exact depth of water in the holds of vessels. The Indicator is placed in any desired part of the vessel, and is connected with the hold by means of a flexible tube. As soon as the end of the tube comes in contact with water the air contained in the tube is compressed, acting on an air-tight valve inside of the Indicator, and in connection with a movable index, which will exhibit exactly the number of inches of water there may be in the hold. The instrument is very delicate, and acts almost instantaneously, as was seen by the experiment which was made with an ordinary glass of water. This Indicator will show twelve feet of water, and has been in successful use for some time. A very animated discussion arose as to whether it would not be affected by a change of temperature. The matter was not decided, but the majority seemed to side with the negative as the correct solution. The exhibitor consented to put the instrument on trial to settle the dispute, but the wager was not accepted.

Mr. Walling showed a plain disk with its flange split in small sections, which he thought was the result of electrotyping. A gentleman present announced that the splits in the flange occurred in the making, and, consequently, not in the electrotyping, though that process might make them more apparent.

The meeting then adjourned to next Thursday night.

LYCEUM OF NATURAL HISTORY.

NEW PROPERTIES OF THE METAT ALUMINIUM WITH THE DISCOVERY OF A NEW ALLOTROPIC MODIFICATION OF THIS METAL.

We give below an abstract of the paper of Professor HENRY WURTZ, of this city, read at the meeting of the Lyceum, on Monday evening last.

The author's numerous experiments upon metals with sodium amalgam (it will be remembered that he is the discoverer of the use of this agent in working gold and silver ores) have revealed to him certain new and surprising properties of aluminium, the most abundant metal (as he remarks) upon the earth; and promising to be the most valuable. These new phenomena, once discovered, may, however, be readily reproduced without the aid of sodium, and they were exhibited to the Lyceum, by Prof. WURTZ, repeatedly, and in various forms. He first pointed out the wonderfully exceptional nature of aluminium, never found native, and so hard to detach from oxygen; yet, when detached, manifesting no more disposition to recombine therewith than gold. His new discoveries solve this paradox perfectly. He first proved that the surface of the metal is passive to quicksilver, as he has before shown in *native* gold, iron, etc., but that, wholly contrary to common belief, the internal parts of a piece of aluminium *absorb pure quicksilver* with avidity; so that a piece of rolled sheet is thus quickly *split into component lamine*. The internal surfaces thus enfilmed with quicksilver, he then proved to possess most surprising new properties. On exposure to air, they at once *take fire spontaneously, and burn with evolution of heat;* a coating of hydrate of alumina, as a bulky feathery or filamentary mass, being formed, with a growth so rapid as to be *visible to the eye*, and under the lens wonderful to behold. To condense the discoveries of Prof. WURTZ, we give his new theory of aluminium, slightly altering the phraseology for the sake of brevity.

1. Normal aluminium is in the electronegative or *passive* state, corresponding to "passive iron," for example.

2. Quicksilver induces an abnormal, *active*, or electropositive state, precisely corresponding to normal sodium and potassium.

His experiments have shown, as he has maintained in a previous paper, that no amalgam of aluminium is formed; and this newly discovered absorption of quicksilver beneath the outer crust of the metal, he believes to be perfectly analogous to the phenomenon of Prof. JOSEPH HENRY'S celebrated lead-syphon experiment, in which a solid amalgamated lead syphon conducted quicksilver indefinitely through its internal pores from an upper to a lower vessel. Prof. WURTZ'S deductions from his own theory are of high interest and importance. For instance, he holds the idea, that we may confidently hope, as one of the results of investigations in this new field, to obtain a permanently passive form of *iron;* a discovery which, if ever made, will be surpassed in practical value by few others; and he asks, why we should not now regard as possible the discovery of sodium and potassium in *their* passive forms, corresponding to ordinary aluminium—in which case, these metals could be handled with impunity, and become articles of general commerce. Mr. W. announces that his paper will probably appear in full in the next (January) number of the *American Journal of Science*.

Correspondence.

[To insure insertion of Correspondence in our columns the full name and address of the writer must be given.]

Oil Boring in Missouri.

LOUISIANA, Pike Co., Mo., Oct. 12th, 1867.

EDITORS OF THE AMERICAN JOURNAL OF MINING:

Our State of Missouri is turning out to be one of the richest in minerals in the Union. I see in the JOURNAL OF MINING that nearly all the most valuable minerals are found here, such as iron, silver, tin, copper, coal, lead, oil, &c. These mines are as yet in their infancy, yet of a rich quality. A little over a year ago, a man by the name of Daken, discovered a soft dark-colored seam in the bluffs near the mouth of Salt River, upon his farm, and seven miles above Louisiana, which would burn, but not like coal. He tried several experiments with it, and finally succeeded in extracting a bottle of oil from it, which he exhibited in Louisiana and St. Louis, and endeavored to form a company, but without success. But he would not give it up, and, finally, this summer he prevailed on several men to go up there and examine it for themselves. They became satisfied that oil might be found; and at a short distance from there, they dug down a few feet, and more than realized their expectations. A few of our most substantial men formed a company, leased considerable land thereabouts, and sold stock to the amount of several thousand dollars. They also sent to Pennsylvania for an old oil-digger, who came and pronounced it a good prospect. Last week they purchased machinery, and are going to work in earnest, boring for oil. On this side of Salt River and opposite to where they will operate, there is what they call Mud Lick, which is a mineral spring; and there are many other mineral springs around through this section of the country.

A. C. ROBINSON.

The Manufacture of Paraffin.

Liebig, in his "Familiar Letters on Chemistry," long ago expressed his belief that one day olefiant gas—the illuminating ingredient of common coal gas—would be obtained in solid form for burning on our tables in candlesticks. The Exhibition of 1851 saw the realization of this desideratum, for there was first exhibited one of the greatest triumphs of chemical science in the shape of solid paraffin. This was the result of the labors of Mr. James Young, the founder of the well-known Bathgate Chemical Works, and the originator of the mineral oil trade; for years before the Pennsylvania natural petroleum was an article of commerce, Mr. Young's oils were in great demand, as was also his solid paraffin, which was, and still is, largely used for making candles. The way in which the important and extensive manufacture of mineral oil in the Torbanehill district originated and became developed is worthy of notice. Some years since—in 1847, we believe—Mr. Young's attention was drawn by Dr. Lyon Playfair to a petroleum spring in an old coal mine near Alfreton, Derbyshire. On careful examination it was found that the oil issued from a layer of sandstone over the coal. Mr. Young took a lease of the mine in the hope of working it for lubricating oils, but the supply proved so limited that he gave the matter up. He next turned his attention to the artificial production of the oil by distilling coal, and ultimately he found that the parrot, cannel and gas coals, and especially the Boghead or Torbanehill mineral, yielded the desired results. In 1850 Mr. Young built the extensive works at Bathgate to carry out the process as a commercial undertaking, and thus laid the foundation of an industry which in a few years has attained immense proportions. The works at Bathgate are of a very extensive and well-appointed character, and are conveniently situated in close proximity to the Torbanehill mineral. The importance of this manufacture, and the leading part Mr. Young has taken in its development, as well as the interesting nature of the works, induces us to give some particulars respecting their arrangement and their products. It is curious to trace the process by which a pure, white, shining tasteless article like paraffin is produced from a compact, dull-looking, rusty black coal. It is also interesting to note the various products which result from the numerous processes involved in the manufacture. At the Bathgate works four different articles are manufactured by Mr. Young, namely, paraffin oil for burning, paraffin oil for lubricating machinery, the light volatile fluid known as naphtha, and solid paraffin or wax. The Boghead coal is conveyed from the pits by means of branch railways to the works, where it is first subjected to crushing to bring the large blocks down to a size fit for the retorts. For this purpose a machine is used, which is formed of two large iron-toothed cylinders, which revolve in opposite directions, and crush up the coal. The broken mineral falls into a pit below in pieces ready for the retort-house, to which they are conveyed by a lift. The retorts are vertical cast-iron tubes, 12 feet in length, and 14 inches in diameter, and are arranged in sets of four, placed in the form of a square, each set being built into one furnace and attended by one man. There are about fifty sets of retorts constructed upon this principle; they are about 3 feet above the feeding platform, and have funnel-shaped tops to facilitate feeding. The tops of the funnels are closed by valves, which are worked by counterbalanced levers. The body of the retorts pass down through the furnaces, the lower ends being made air-tight by immersion in water. A low, red heat is constantly kep up in the furnaces, sufficient to promote the distillation of the coal in the retorts, care being taken to keep the temperature exactly even. The coal fed in at the top of the retort is decomposed as it passes through that part of the tube surrounded by the furnace, and the oil is produced in the form of a vapor, which is led off through a pipe. The refuse material passes down the tube into the water at the bottom, from whence it is removed as it accumulates. As the vapors are generated they pass off into a main pipe, which conducts them to the condensers, which are placed outside the building, and are constructed upon the same principle as those employed in gas-works. The vapors are thus condensed into a liquid, with the exception of a small portion which is always incondensible, and which is collected into a gas holder and used for lighting the workshops. The liquid portion is run off into a tank or reservoir capable of holding 100,000 gallons of this thick, black, greasy fluid, which constitutes the first result of the process of transformation which the Boghead coal undergoes. From the reservoir, the crude oil is drawn off as required to cisterns for supply to the stills, to which it is fed by gravitation, and where it undergoes the first purification. The stills are cylindrical in form, and are placed in rows, with passages between them for the attendants. The stills are filled with crude oil, and the joints made air-tight with clay; fire is applied beneath, and a regular heat is maintained, which once more converts the oil into vapor. This vapor passes through iron pipes immersed in cold water, and is re-condensed, passing into receiving tanks. The color of the oil is now a dark green, and its consistency much thinner than when it entered the still. The impurities are left behind in the still in the form of a compact lustrous coke, which makes an excellent fuel and is used on the works. The oil after the first purification is passed into a series of cast-iron tanks, resembling a row of boilers, where strong sulphuric acid is added to it for the purpose of separating the remaining impurities from the oil. Each tank is fitted with a revolving stirrer which is worked by machinery, and which violently agitates the liquor for four hours, causing the acid to act upon the whole of the oil. The color of the oil has now changed from a dark to a light green, and the organic impurities have settled to the bottom of the tank in the form of coarse tar, which is used as fuel. The third stage of purification is effected by an alkali which neutralizes any sulphuric acid that may remain in the oil, and further divests it of other impurities not acted on by the acid. After a thorough cleansing, the liquor is allowed to settle; the refuse is then drawn off, and the oil is returned to the stills, where it undergoes a second distillation. From the receiving tanks it is again led to the cleansing tanks, where it is treated a second time with sulphuric acid and afterwards with soda. The oil has now arrived at a state of comparative purity, and has assumed a pale yellow color. In this condition it embodies the elements of four different products, each of which has its own separate value. To render them commercially available, the oil is again distilled at various temperature, which processes we reserve for description in our next.—*London Mechanics' Magazine.*

Description of Warm Lakes.

The warm lakes are nearly on a line with the eastern boundary of California, and commence a short distance in Oregon. A correspondent of the *Arcalanche* says: "The lakes are a series of marshes—at times miles of clear, uninterrupted water—extending north and south upwards of forty miles, and in places fifteen wide; the mountains making a high, steep and rocky shore on the east, and on the west the lakes are bordered by the usual variety of scenery and formations—varied with low, dry alkali flats on a level with the tules, which is the principal vegetable and nearest thing to timber I have seen on the lakes; I am told, however, that sagebrush islands abound farther north, where the lakes widen. Ducks, geese and gulls innumerable are in sight. The Warner Mountains contain considerable timber of the mahogany species, but I have heard of no prospects mineralogically. Substituting sagebrush plains for these lakes and Warner Mountains are in a manner very similar to Stein's. Snow is in all places yet. Indians can have a good view of matters east from the mountains, and a retreat into the lakes and sage west. By the way, I should not forget that there is a very perceptible current in the lakes, setting north, and the question arises whether they are not the outcroppings of a large subterranean river?—besides, I am told that the water rose in them one foot during one day last spring, which would require a hundred times more water than the natural water-shed of surrounding country can produce. Here, then, may be something of the solution of the problem of what becomes of the waters that sink in Nevada. To continue the subject a little further, these lakes are on a level with the Harney, Malheur, etc., and the latter, I believe, have no outlet above the ground; and the presumption is that all are connected, though Harney Lake tastes salty, while

Warner Lakes are fresh, clear and cool. As I may learn more of the subject during the summer, I may only add that on the east side of Warner are many large detached bowlders, presenting smooth sides, whereon are traced, in outline, pictures of mountain sheep, deer, etc., with a species of indelible ink, but by whom is not known. Persons who are conversant with Fremont's journals of explorations, say the location and hieroglyphics correspond to those mentioned therein many years ago.

A Region of Surpassing Wonders.

We recently published an account in our Mining Summary of the discovery by some prospectors of natural, or rather *un*natural wonders in the vicinity of Yellowstone Lake, near the headwaters of the river of the same name in Montana. A correspondent of the *Frontier Index* gives the following additional particulars: "Up the Yellowstone above a certain distance, there are no indications of gold; indeed, nothing but one vast causeway of boiling springs and lakes, spouting into the air waters which deposit buttes of mine of every property known to chemists. The great Yellowstone Lake, 60 by 25 miles, is on the top of a considerable mountain in the midst of this 'hell,' as the prospectors call it, where the fumes of brimstone and boiling lava are so offensive to the nasal organ of man and beast, and the mountains so hollow and porous, that the most rugged constitutions cannot endure to approach some parts of it nearer than several hundred yards. This vast volcanic district embraces a region of eight days' travel through it, and it is altogether the greatest wonder of the world. Near the outskirts of this monstrous locality, there is a lake on top of the mountain that is yet frozen over, the ice and snow covering its surface some twenty feet deep. Two main forks of the Yellowstone, one heading opposite Wind and Green rivers and the other opposite Henry's Fork of Snake river, in the same vicinity that the Madison and Gallatin rise, empty into the big lake, which has for its outlet the Yellowstone river, and just below the lake the whole river falls over the face of a mountain thousands of feet, the spray rising several hundred. A pebble was timed by a watch in dropping from an overhanging crag of one perpendicular fall, and is said to have required eleven and a half seconds to strike the surface of the river below. That beats Niagara Falls 'all hollow.' The river at these greatest falls is represented to be half as large as the Missouri at Omaha, and as clear as crystal. The great lake, like all others in these mountains, is thick with salmon trout, of from five to forty pounds weight, and where the milky boiling mineral waters from the geysers intermingle with the pure clear water from the running streams, these elegant fish can be 'forked' up by the boat load. A few years more and the U. P. Railroad will bring thousands of pleasure-seekers, sightseers and invalids from every part of the globe to see this land of surpassing wonders."

Novel Application of Electro-Magnetism.

A recent number of the *Cosmos* contains an article of considerable interest of the various applications of electro-magnetism by Prof. Glæsener, of the University of Liege, in Belgium. Among them there is a Chronograph for the measurement of very minute particles of time, and which deserves some description as regards its application to artillery. Suppose it be required to measure the velocity of a cannon-ball. For this purpose let a series of targets, consisting of hoops intersected by wires, be placed at given distances. The wires of each hoop communicate with a separate electro-magnetic apparatus, by which an iron pencil-holder is kept in an unvarying position by attraction so long as the circuit is not interrupted. Opposite and close to this pencil-holder there is a cylinder turning on its axis at the rate of four revolutions in a second. Its surface, which is covered with paper, is divided into five hundred parts by lines drawn parallel to its axis, so that each part represents one two-thousandth of a second. Its motion is effected by clockwork. Now, whenever the electric current is interrupted the pencil-holder ceases to be attracted, and falls on the surface of the cylinder, on which its pencil, therefore, describes a line. Whenever the circuit is completed the pencil-holder is re-attracted and leaves the paper. Let us now suppose a cannon ball to be fired through all these targets, so placed, of course, as to lie in the path of the curve described by the missile. Each time it passes through one of the hoops it snaps asunder one of the wires; the circuit is consequently interrupted, the pencil-holder falls and marks the precise time of the passage. And so on, from target to target, each of which, as we have said, is connected with a separate apparatus. In this way both the space and the time employed in going over it being determined, the velocity, which is the ratio of time to space, is determined also to a fraction of one two-thousandth of a second.

The Rocking-Stone at Barre, Mass.

A correspondent of the Boston *Advertiser* says: "In the northern part of this town of Barre is a natural curiosity of the first order, mentioned, perhaps, in some forgotten old books of New England antiquities, and called, indiscriminately, Cradle Rock and Rocking Stone, in common parlance and on the local maps. It is certainly entitled to the former name; perched on a high ledge, which lifts it above the neighboring trees, passengers along more than one of the roads in the vicinity may note its close resemblance to a cradle—a cradle, too, of the old-fashioned sort which may be supposed to date back to the time of Noah. One rock forms the body of the cradle, and upon one end of this, high up out of human reach, is balanced the other lesser rock which supplies the top of the cradle. How the huge mass got up so high, and why it was left there, is a question which must remain unanswered, unless Prof. Agassiz, provoked by my unscientific description, comes up here and solves the problem by a glacial explanation. I have never visited the rock with a tape measure, and cannot give you its dimensions with any pretence of accuracy; but it is a prodigious mass of granite, and by its singular formation quite awe-inspiring to the beholder who looks up at it from the base. Tradition says that it used to deserve literally its popular title of rocking-stone, being swayed by the wind or the hand in a gentle motion, such as might have rocked some giant antediluvian to sleep, but that certain Puritan vandals, thinking that anything which could rock might be tipped over, and bent, perhaps, on destroying what might be a witness to some infidel scientific theory or creation, hitched all the oxen in town to the stone, and urged them with goad and shout to pull it over. The grim old phenomenon resisted all their hauling and prying; but possibly in grief at their irreverence, has never rocked since."

An Underground Forest

An Iowa paper states that Captain Appleman, who lives on a point of land, nearly the highest in Fayette county, east of Clermont, while sinking a well a few days ago, through heavy clay, at the top of a hill, at the depth of twelve or fifteen feet, came upon the top of a forest, the trees, many of them, standing upright in the solid earth. The trees were small, about fifteen feet in height, and standing in a position showing that the earth by which they were submerged had been gently and gradually deposited around them, else they could not have maintained an erect position.

A Substitute for Plaster of Paris Moulds

Chloride of magnesium, it has just been announced, can unite and associate with magnesia, forming an oxychloride of magnesium perfectly insoluble, and possessing the property of taking all variety of forms, in a degree incomparably greater than plaster of Paris. It also is capable of taking a high polish of a greater number of substances with which it may be mixed in the proportion of a fifteenth to a twentieth of their weight.

"Big Trees" in Australia.

Dr. Mueller says in the Melbourne *Age*, that accurate measurement of some of the great Australian *eucalypti* have been made, and that one grand specimen found in Western Australia, known as Mueller's *eucalyptus* colossus, was ascertained to be 400 feet high; while one of the Labellardi's *eucalypti*, in the Dundenoag Ranges, measures 480 feet, which was as high as the great pyramid of Gizale.

Patent Claims.

Interesting to Miners, Millmen, Metallurgists, Oil-Men, and Others.

70,166.—METHOD OF REMOVING CARBON FROM GAS RETORTS.—B. E. Chollar, Leavenworth, Kansas:

I claim the use of a jet of steam in the stand-pipes of gas retorts to cause a draft of air through the retort for the purpose of burning or consuming the deposit of carbon, substantially as described.

70,210.—COMPOSITION FOR HARDENING STEEL.—Charles T. J. Hayden, Versailles, Mo.:

I claim the application of the aforesaid chemical compound or mixture to steel for the purpose of hardening it, or any other substantially the same, which will produce the same effect; when steel is hardened it can be used in cutting glass, steel, or other hard substances.

70,211.—WATER WHEEL.—George W. Herring, Bangor, Maine:

I claim the alternate long and short buckets, b, c, formed respectively with curved and radial portions, c, g, d, f, and placed or arranged relatively with the upper and lower rims, a, a, of the wheel and the shaft, e, and the lower rim, a, fitted in a circular opening in the bottom of the scroll, substantially as herein shown and described.

70,244.—PUMP.—James A. Morrell, Chicago, Ill.:

I claim the air-chamber, A, provided with the arms, d and e, and with a slide opening or cavity, J, cast with it and also supporting two stationary plungers, B, in combination with the cylinders, C, constructed with necks having annular cavities, and with their internal diameters enlarged below the necks, as described, valves, D, and balls, I, the several parts constructed and arranged substantially as and for the purposes specified.

70,281.—MACHINE FOR SPINNING METALS.—Charles F. Spaulding, St. Johnsbury, Vt.:

I claim the arrangement and combination of a lever, E, with the spinning wheel or wheels and die wheels, substantially as set forth.

I also claim the die wheel as constructed with the peripheral opening, k, and the groove, q, arranged in it, substantially as and for the purpose hereinbefore set forth.

I also claim the combination and arrangement of the supporting roller, G, and its adjustable devices, as described, with the die wheel and its shaft movable lengthwise, as set forth.

I also claim in combination with the spinning wheel supporting lever, and the die wheel shaft, arranged as described, the devices by which the vertical adjustment and longitudinal movements of the said shaft may be effected, as set forth.

I also claim the arrangements and combination of the separate handle, F, and its fixtures, substantially as described, with the lever, E, and the spinning and die wheels, arranged as explained.

70,285.—PUMP.—Ransom E. Strait, Battle Creek, Mich.:

I claim, 1st, The detachable spout, C, and rest to fulcrum, E, constructed as specified and operating as set forth.

2d, The spring, h, and valve, e, and valve-seat, f, constructed as described and operating as set forth and for the purposes specified.

3d, The arrangement of the cup or spout, C, barrel, A, reducing socket, I, joint, A, barrel, B, and conceal point, G, and valves, b and c, plunger, F, standard, E, and handle, D, the whole constructed and operating as described and for the purposes set forth.

70,286.—BLOWER WHEEL.—B. F. Sturtevant, West Roxbury, Mass.:

I claim the arrangement of the blades and the frusco-conical constantly when operating in connection with a main burner, substantially as and for the purposes set forth.

70,298.—MINER'S PICK.—S. H. Wallace, Parnassus, Pa.:

I claim making the head or points, or both head and points, of picks for mining purposes removable, substantially as and for the purposes hereinbefore set forth.

70,301.—WATER WHEEL.—Samuel Webb, Joliet, Ill.:

I claim the combination of the air-tube, b, the floats or buckets, d, d, d, the lid, c, and buckets, b, h, of the peculiar shape described, all constructed and arranged as and for the purposes set forth.

70,321.—APPARATUS FOR REDUCING QUICKSILVER ORES.—Joseph C. Coult, San Francisco, Cal.:

I claim, 1st, The fire-chambers, B, B, ore chambers, C, C, and vapor-chamber, D, arranged together and with a steam tank above them, as and for the purpose set forth.

2d, The arrangement of the pans within the chamber, D, with alternate spaces between their sides and the walls of the chambers, as and for the purposes set forth.

3d, The silvered wire screens, c, c, c, in the condensing flue, E, used as and for the purposes set forth.

4th, The arrangement of the flues, H, H, H, water-tanks, I, and partitions, J, J, substantially as and for the purposes set forth.

5th, The arrangement of the steam pipe, F, and its orifice, K, with the orifice for creating a draught as and for the purpose set forth.

70,322.—PUDDLING AND HEATING FURNACE.—Samuel Cuddick, Pembroke, Maine:

I claim the shape and form of the inner door and its brick lining of peculiar shape, and the flanges upon the door, with its slides, pins, and pin-holes, as above described.

I also claim, as an improvement in the applying of the water by the improved manner of wrought-iron tubing detached and renewable at pleasure instead of being cast in the doors, frames, and other castings of the furnace.

I also claim the forms of the application or introduction of water over the air blast box by means of wrought-iron detached tubing instead of the cast-iron tubing in the air-blast box, with the flange of the air-blast box attached to support the bottom of the furnace instead of having the air-box resting upon it.

I also claim the water tanks or chambers in the fire grates as described, and in the introduction of water through the bearers or supporters of the furnace bed or bottom and in the under side of the bottom or bed of the furnace, as indicated by the drawing.

I also claim as my improvement in the chimney the skeleton columns, as above indicated by Figs. 1, 11, and 12.

70,329.—CUPOLA, BLAST, AND SMELTING FURNACE.—Henry Fayette, Port Chester, N. Y.:

I claim, 1st, A downward central blast through a pipe so located in the furnace that the air will become heated by the fire of the furnace before being discharged into the same, substantially as shown and described.

2d, A divided downward blast, one portion passing down a flue or pipe through the centre of the furnace and the residue down side flues so located that the air in all said flues will become heated in passing down the same, substantially as described.

3d, An upward central blast from below the furnace, substantially as shown and described.

4th, The combination of an upward and downward central blast, substantially as shown and described.

5th, In combination with the air-chamber, B, I claim the curved wings, s, to conduct the blast into the furnace with a whirling, centripetal motion, substantially as described.

6th, In combination with a central blast, whether from above or below, or both, I claim the flanges or disks, o and f, with the intervening curved wings, t, to give the blast from the centre a whirling, centrifugal motion, as described.

7th, In combination with the air-chamber, B, and curved wings, s, I claim a central blast from above or below, or both, with the curved wings, t, all constructed and arranged substantially as and for the purposes described.

8th, In combination with an annular air-chamber, as described, I claim passage-ways for a portion of the air to be forced therefrom into the circumference of the furnace and a curved or bent pipe or flue for conducting another portion of the air from said chamber down below, and thence up through the bottom of the furnace centrally, as described.

70,359.—COMPOUND FOR BLASTING POWDER.—Albert T. Rand, New York City:

I claim a compound powder made substantially as above described, for the uses and purposes above set forth.

70,361.—COMPOSITION TO BE USED IN PUDDLING IRON.—Josiah E. Richards, Columbia, Pa.:

I claim the combination of the black oxyd of manganese with litharge and also with nitrate of potassa, when combined in the manner and for the purpose substantially as herein specified.

70,379.—PUMP.—Hiram Tyler, Gaines, N. Y., assignor to himself, Charles T. Richards, Albion, N. Y., and John Marsh, East Carrollton, N. Y.:

I claim the boxes, D and E, pipes, B, C, valve-plates, I, and piston-head, as constructed with its pist on-rod, F, the several parts being used with the cylinder, A, when combined, arranged and operating in the manner substantially as and for the purposes herein specified.

Special Scientific Brevities.

☞ General the Count de Molin, an Italian nobleman, has constructed and patented a paddle engine, working by electricity, to be adapted to a small boat, christened L'Electricite, destined to ply on the large lake of the Bois de Boulogne. The working parts are thus composed: "There are two upright hoops, about two feet and six inches in diameter, placed three inches apart, in the periphery of each of which are opposed sixteen electro-magnets, placed opposite each other. Between these there is another hoop or wheel, of soft iron, of the same diameter as the others, and so articulated as to receive, when alternately attracted by the magnets at each end in succession, a sort of rolling from side to side, or 'waddling' motion. To this wheel is fixed an axis about seven feet long, which constitutes the prime moving shaft of the machine. When the wheel between the magnets takes its rolling motion it causes the ends of this axis to describe circles; one end turns the crank of a fly wheel, while the other end is adapted to a framework, on the same principle as the pentagraph, which enlarges the motion received from the central disk, and communicates it in the form of a stroke by a connecting rod to a crank on the paddle shaft. This end of the moving bar also sets to work the distributors for alternately establishing and cutting off the electric communication between the magnets and the battery. There will be in all sixteen elements of Bunsen's. The force of the machine while at work with four elements was found to be one quarter man power, so that with sixteen cells the power will be about that of a man. The paddle wheels are two feet and six inches in diameter."—*N. Y. Telegrapher.*

☞ The lucimeter, an instrument for measuring the quality of burning oils by their illuminating power, invented by Mr. Desaurieres, consists of two constant pressure lamps and a photometer, constructed on a new principle. Its shape is triangular; it is made of sheet iron, painted black, and is divided into two equal compartments. The latter are turned toward the lamps while the observer stands on the opposite side, which presents nothing but a flat vertical surface, pierced with a hole bisected by the partition. Each of the two lamps is so placed so as to transmit its light to only one compartment, and exactly to the part where the hole is. The hole is covered with a piece of transparent paper on which the light from the two lamps is contiguously depicted. If their intensity is the same, the observer will perceive no difference. If not the same, one lamp must be moved back until its light is equal to the other in intensity, and the difference in the distance of the two lamps will make the relative quality of the two oils, which combined with the quantity consumed in a given time will determine their marketable value.

☞ Prof. Bottger has found that a mixture of eight parts of teroxide of thallium and one part of penta sulphide of antimony (commonly called the golden sulphuret) has the property of igniting by friction. A mixture of teroxide of thallium and powdered sulphur ignites with a sharp explosion when struck. The picrate of thallium may be exploded in the same manner. However, the scarcity of thallium will prevent the use of these compounds for commercial purposes.

On-dit about Minerals, &c.

☞ A Cape of Good Hope paper states that the people are prospecting in all directions in the neighborhood of Colesburg in search of diamonds. A number of these precious stones have already been found, some of them of considerable value. The first diamond was picked up by a little girl at Hope town, who took the diamond to her mother, and the latter, thinking it only a pretty stone, returned it to the child to play with. A farmer happened to see it glitter, and offered to buy it of the girl, but she gave it to him, saying laughingly, who ever heard of selling a stone. He took it, and it proved to be a diamond worth £500. Garnets have just been found in considerable numbers at the Cape. The copper miners in Amapoudriand are meeting with much encouragement. Oil stones have just been found in the Danube river. Amber has also been found in the Colesburg district, also formations containing phosphorus and quicksilver. It is also reported on good authority that some gentlemen in seeking for diamonds have come upon a lode of silver and lead ore.

☞ The marbles of Vermont have become one of its chief sources of wealth. The quarries and mills, located at Rutland, supply a large part of the marble of domestic production which is used in this country for statuary, monumental and other purposes, where a fine grade is desired. A capital of several millions of dollars is employed in the business, and a large proportion of those who have embarked in it have been in an eminent degree successful.

☞ Player's monster furnace at Norton, England, produces one ton of foundry iron to one ton of coal, the ores yielding only 30 per cent. The furnace which yields such an enormous amount is 27 feet bosh and 103 feet high. In this country a yield of one ton of iron to two and a half tons of coal from 50 per cent. ores is often considered a good result.

☞ Within the past sixteen years the yield of gold in New South Wales and Victoria has been seven hundred and fifty million dollars. South Australia has exported twenty-five million dollars in copper within ten years. There are now thirty-five million dollars in cattle, horses and sheep in Australia.

☞ The North American claim at Michigan Bluffs is said to have yielded three hundred thousand dollars since it was first opened. Nitro-glycerine has recently been introduced into this mine as a blasting agent. It is said to take a better hold of the cement in breaking it down than powder does.

☞ The whole number of mines in France, is now 1,184, of which 598 are coal mines; 249 iron mines, and 337 mines of other minerals. The production of the coal mines and iron works last year reached the value of 472,000,000 francs.

☞ The salt works in Smythe county, Va., are in active operation again, and are shipping large quantities of salt to various parts of Virginia, as well as supplying Tennessee and adjacent States.

☞ All varieties of bitumen, such as asphaltum, elastic bitumen, caoutchouc, etc., are found in Tennessee and Northern Alabama.

☞ Rich specimens of gold-bearing quartz have been found in Stanley county, N. C.

All Sorts.

☞ A stationary high pressure steam engine was exhibited in Brooklyn recently, which is said to be the largest ever built in this country. The frame is a hollow tower of cast iron and weighs 35,600 pounds. On the top of this is the cylinder, 48 inches in diameter by 40 in length, and weighing 10,000 pounds. This cylinder is calculated for 1,200 horse-power at half stroke, or 2,000 at full stroke. When the engine is in operation, the principal bearings are covered with cold water from a pipe which runs through the crank and turns with it by an elbow. This monster engine is intended for Messrs. Cooper & Hewitt's rolling Mills, at Trenton, N. J., and with it they hope to roll iron beams 40 feet long and twenty inches wide.

☞ An ingenious arrangement for raising water supplies the power for a flour mill in Virginia. The process is to introduce steam—the exhaust of a non-condensing engine is sufficient—into a reservoir connected by a pipe with a supply of water below, and then, by a jet of water, to condense

the steam, creating a vacuum, which is instantly filled with water to be discharged into a flume or reservoir, from which it is carried to the water-wheel.

☞ Silk culture, as wine making, promises to be an important part of the business of California in the future. Silk worms have been bred in California regularly since 1860, and the weather being favorable, the increase has been rapid, and next year the total production will, it is expected, reach as high as 15,000,000 cocoons. It is said that the average of European cocoons in quality of fibre is considerably surpassed by the California cocoons.

☞ A ship canal is in process of construction at Amsterdam, 213 feet wide at the water line, and 18 feet deep, to open a communication between Amsterdam and the North Sea, and avoid the circuitous and expensive route through the North Holland Canal, which for many years formed the only approach to the city navigable by large vessels.

☞ Immense works have just commenced in the south of France for rendering the Rhone navigable from Arles to the sea. The cost of this undertaking is estimated at 8,000,000 francs.

☞ About $9,000,000 worth of buildings have been erected in Chicago the present year.

MISCELLANEOUS.

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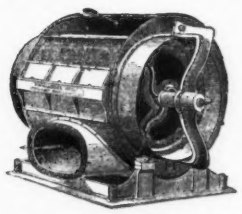

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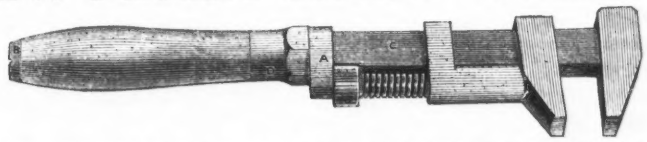

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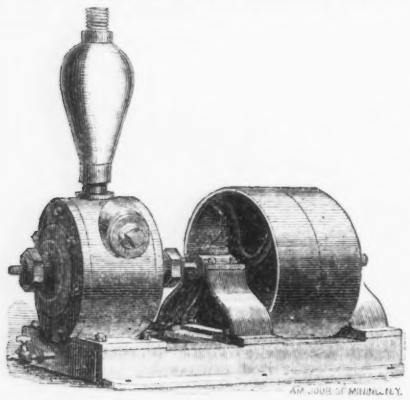

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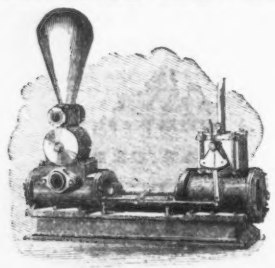

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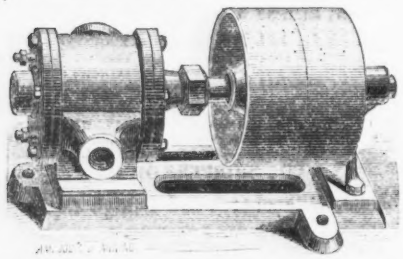

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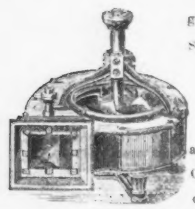

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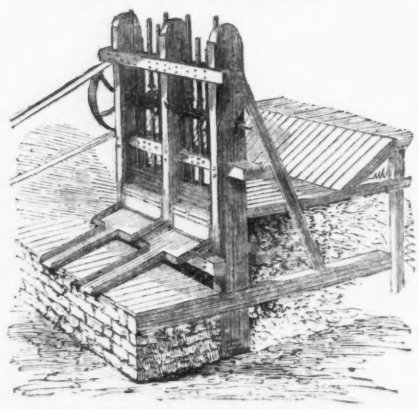

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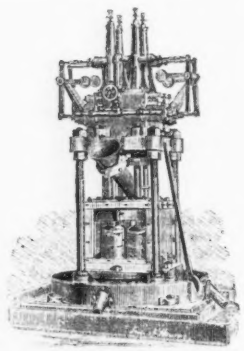

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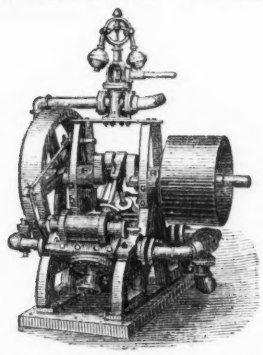

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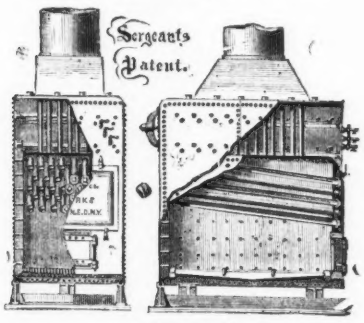

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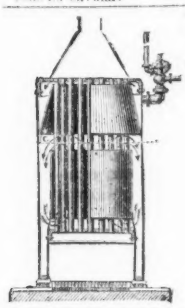

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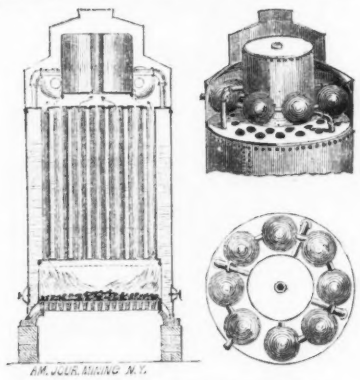

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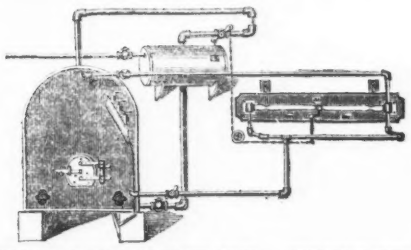

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Engines and Boilers, complete, 5 H. P. 1,750 pounds, $770; 10 H. P. 4,000 pounds, $1,125; 20 H. P. 7,500 pounds, $1,850; 40 H. P. 13,000 pounds, $3,145.

Parts very light for shipment.

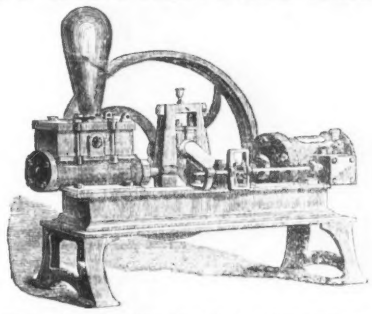
GREAT COMPACTNESS AND SIMPLICITY.

Priced catalogues mailed.

ROOT STEAM ENGINE COMPANY,
15:4pl 500 to 510 Second avenue, corner 28th street, N. Y.

STEAM PUMPS.

J. CLAYTON'S
Patent Steam Pumps,
HAND PUMP AND STEAM ENGINE COMBINED.



These pumps contain every desirable quality in a steam pump, are made of the best material, and in the best manner, and are the cheapest first-class pumps in the market. For cut and description see JOURNAL OF MINING, No. 18, Vol. I. Please send for circular.

All sizes of pumps made to order at the shortest notice.
7.4.ps JAMES CLAYTON, 102 Front street, Brooklyn, N. Y.

HYDRAULIC WORKS,
MANUFACTORY,
BROOKLYN, N. Y

Steam Pumping Engines, Single and Duplex, Worthington's Patent, for all purposes, such as Water Works Engines, Condensing or Non-condensing; Air and Circulating Pumps, for Marine Engines; Blowing Engines; Vacuum Pumps Stationary and Portable Steam Fire Engines Boiler Feed Pumps, Wrecking Pumps,

Mining Pumps,

Water Meters, Oil Meters; Water Pressure Engines; Stamp Mills for Gold, Silver and Copper Ore; Eaton's Patent Amalgamators for Gold and Silver Steam and Gas Pipe, Valves, Fittings, &c.; Iron and Brass Castings.

☞ Send for Circular. L. R. WORTHINGTON.
19-2-qp 61 Beekman street, New York.

STEAM PUMPS.—GUILD & GARRISON,
ENGINEERS AND MACHINISTS.

Manufacturers of Steam Pumps, Steam Engines, Vacuum Pans, and all the necessary connections. The Steam Pumps are of the following class, namely

EXCELSIOR,	AIR VACUUM
BALANCE WHEEL,	DOUBLE PLUNGER
DUPLEX,	WATER PROPELLOR,

and a number of other plans adopted for different purposes. These Pumps are suitable for all the various kinds of Pumping. Manufactured and for sale at the STEAM PUMP WORKS, Cor. South Tenth and First Street, WILLIAMSBURGH, NEW YORK 2.4-qp.

CHAPPELL'S PATENT
STEAM VALVELESS PUMP
OR
BILGE EJECTOR.

Address
CHAPPELL MANUFACTURING COMPANY,
4:4:xm 99 BANK STREET, New York

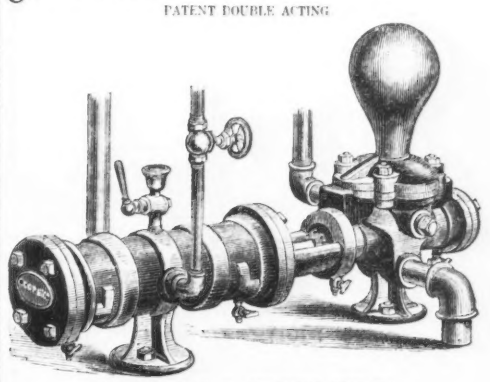
PUMPS! PUMPS!! PUMPS!!? PUMPS!!!

ALL KINDS OF
STEAM POWER, ROTARY, LIFT, SUCTION,
AND
HAND PUMPS,

And all kinds of Gas and Plumber's Tools and Fittings, Wholesale and Retail, at the Lowest Rates, by

J. B. FULLER,
4:7:ps 47 Dey street, New York

COPE & MAXWELL'S
PATENT DOUBLE ACTING



STEAM PUMPS,
FIRE ENGINES, RAILROAD STATION PUMPS, and BOILER FEEDERS,
COPE & CO., SOLE MANUFACTURERS,
No. 118 East Second Street, Cincinnati, Ohio.
Steam Pipe Fittings and General Brass Work.
☞ The right to manufacture in the Eastern States for sale. nov2:xm3sow

THE
POSITIVE STEAM PUMP,
WILLIAM HARSEN,
PATENTEE AND MANUFACTURER, GREENPOINT, L. I.
Costs one-third less than any other First-Class Pump of the same Capacity
J. W. COLE,
MANUFACTURER'S AGENT,
18:4:3m Room 3, No. 205 Broadway, near Fulton street, New York

FIVE HUNDRED MILES

OF THE

UNION PACIFIC RAILROAD,

Running West from Omaha

ACROSS THE CONTINENT,

ARE NOW COMPLETED.

The Union Pacific Railroad Company have built a longer line of railroad in the last eighteen months than was ever built by any other company in the same time, and they will continue to work with the same energy until it is completed. The Western Division is being pushed rapidly eastward from Sacramento by the Central Pacific Company of California, and it is expected that

THE ENTIRE GRAND LINE.

to the Pacific will be open for business in 1870. MORE THAN ONE THIRD OF THE WORK HAS ALREADY BEEN DONE. MORE THAN ONE THIRD OF THE WHOLE LINE IS NOW IN RUNNING ORDER, AND MORE LABORERS ARE NOW EMPLOYED UPON IT THAN EVER BEFORE. More than

Forty Million Dollars in Money

have already been expended by the two powerful companies that have undertaken the enterprise, and there is no lack of funds for its most vigorous prosecution. When the United States Government found it necessary to secure the construction of the Union Pacific Railroad, to develop and protect its own interests, it gave the Companies authorized to build it such ample aid as should render its speedy completion beyond a doubt. The available means of the Union Pacific Railroad Company, derived from the Government and its own stockholders, may be briefly summed up as follows:

1.—United States Bonds

Having thirty years to run and bearing six per cent. currency interest, at the rate of $16,000 per mile for 517 miles on the Plains; then at the rate of $48,000 per mile for 150 miles through the Rocky Mountains; then at the rate of $32,000 per mile for the remaining distance, for which the United States takes *a second lien* as security. The interest on these bonds is paid by the United States Government, which also pays the company one half the amount of its bills in money for transporting its freight, troops, mails, &c. The remaining half of those bills is placed to the company's credit, and forms a sinking fund which may finally discharge the whole amount of this lien. The claims against the Government since April of the current year amount to four and one half times this interest.

2.—First Mortgage Bonds.

By its charter the Company is permitted to issue its own First Mortgage Bonds to the same amount as the bonds issued by the Government, and *no more, and only as the road progresses.* The Trustees for the bondholders are the Hon. E. D. Morgan, U. S. Senator from New York, and the Hon. Oakes Ames, Member of the U. S. House of Representatives, who are responsible for the delivery of these bonds to the Company in strict accordance with the terms of the law.

3.—The Land Grant.

The Union Pacific Railroad Company has a land grant or absolute DONATION from the Government of 12,800 acres to the mile, on the line of the road, which will not be worth less than $1 50 per acre at the lowest valuation.

4.—The Capital Stock.

The authorized capital of the Union Pacific Railroad Company is $100,000,000, of which over $5,000,000 have been paid on the work already done.

THE MEANS SUFFICIENT TO BUILD THE ROAD.

Contracts for the entire work of building 914 miles of first-class railroad west from Omaha, comprising much of the most difficult mountain work, and embracing every expense except surveying, have been made with responsible parties (who have already finished over 500 miles), at the average rate of sixty-eight thousand and fifty-eight dollars ($68,058) per mile. This price includes all necessary shops for construction and repairs of cars, depots, stations and all other incidental buildings, and also locomotives, passenger, baggage, and freight cars, and other requisite rolling-stock, to an amount that shall not be less than $5,000 per mile. Allowing the cost of the remaining one hundred and eighty-six of the eleven hundred miles assumed to be built by the Pacific Company to be $90,000 per mile.

The Total Cost of Eleven Hundred Miles will be as Follows:

914 miles, at $68,058	$62,205,012
186 miles, at $90,000	16,740,000
Add discounts on bonds, &c	4,500,000
Amount	$83,445,012

As the U. S. Bonds are equal to money, and the Company's own First Mortgage Bonds have a ready market, we have as the

Available Cash Resources for Building Eleven Hundred Miles:

U. S. Bonds	$29,328,000
First Mortgage Bonds	29,328,000
Capital Stock paid in on the work now done	5,389,750
Land Grant, 14,080,000 acres, at $1 50 per acre	21,120,000
Total	$85,145,750

The company have ample facilities for supplying any deficiency that may arise in means for construction. This may be done wholly or in part by additional subscriptions to capital stock.

Active inquiry has already been made for a portion of these lands, and arrangements are now proposed to offer a part of them for sale. While their whole value will not be available for some years to come, they will remain a very important source of revenue to the Company. The lands of the Illinois Central Railroad Company are selling at from $6 to $12 per acre, and other land-grant companies in the West are receiving equal prices for similar properties.

Future Business.

The most skeptical have never expressed a doubt that when the Union Pacific Railroad is finished the immense business that must flow over it, as the only railroad connecting the two grand divisions of the North American continent, will be one of the wonders of railway transportation; and as it will have no competitor it can always charge remunerative rates.

Earnings from Way Business.

During the quarter ending July 31, an average of 325 miles of the Union and Pacific Railroad was in operation. The Superintendent's Report shows the following result:

EARNINGS.

Passengers, Freight, Telegraph and Mails	$723,755 54
Transportation of Contractors' Materials and Men	479,283 41
Total	$1,203,038 95

EXPENSES.

Fuel, Repairs, Offices, Conductors, Trains, &c	$395,530 92
NET EARNINGS to balance	807,508 03
Total	$1,203,038 95

The net operating expenses on the commercial business for the quarter were $237,966 50. The account for the COMMERCIAL BUSINESS stands as follows:

Earnings for May, June and July	$723,755 54
Expenses " " "	232,966 50
Net Profit	$485,789 04

The amount of Bonds the Company can issue on 325 miles, at $16,000 per mile, is $5,200,000. Interest in gold, three months, at 6 per cent., on this sum is $78,000; add 40 per cent. premium, to correspond with currency earnings, is $109,200—showing that the net earnings for this quarter were MORE THAN FOUR TIMES THE INTEREST on the First Mortgage Bonds on this length of road.

First Mortgage Bonds,

whose principal is so amply provided for, and whose interest is so thoroughly secured, must be classed among the SAFEST investments. They pay

SIX PER CENT. IN GOLD,

and are offered for the present at NINETY CENTS ON THE DOLLAR, and accrued interest at Six Per Cent. in Currency from July 1.

Many parties are taking advantage of the present high price of Government stocks to exchange for these Bonds, which are over FIFTEEN PER CENT CHEAPER, and, at the current rate of premium on gold, pay

OVER NINE PER CENT. INTEREST.

Subscriptions will be received in New York at the Company's Office, No. 20 Nassau Street, and by

CONTINENTAL NATIONAL BANK, No. 7 Nassau street,
CLARK, DODGE & CO., Bankers, No. 51 Wall street,
JOHN J. CISCO & SON, Bankers, No. 33 Wall street,

and by the Company's advertised Agents throughout the United States, of whom maps and descriptive pamphlets may be obtained on application. Remittances should be made in drafts or other funds par in New York, and the bonds will be sent free of charge by return express.

JOHN J. CISCO, Treasurer, New York.

October 28th, 1867. 4w-194

GEORGE P. ROWELL & CO.'S

SELECT LIST OF ONE HUNDRED NEWSPAPERS.

THEIR ORIGIN.

The ordinary business of an Advertising Agent consists in receiving orders for newspapers at regular prices, and that is, without doubt, the most pleasant way of conducting an Agency; but the public are disposed to patronize those parties who will give most for the money, and consequently it becomes evident that a large business can only be secured by being able to offer the greatest facilities. The desire to make our own a leading house in the business we had undertaken, led us several years since to commence the system of special contracts, which has been enlarged upon from time to time, until the early part of 1867, when we presented to the public, OUR FOUR LISTS of ONE HUNDRED NEWSPAPERS EACH, now so well known and appreciated by advertisers generally.

WHAT THEY ARE.

These papers are selected from the secular Press—the POLITICAL, LOCAL, FAMILY, and BUSINESS newspapers of the country—our rule being to take but ONE in EACH TOWN OR CITY, and that the one which, all things considered, is likely to be of most service to an advertiser in proportion to the price paid. In places where a daily is issued, we give it the preference, as best calculated to reach the BUSINESS COMMUNITY; and, excepting the few Religious, Agricultural, and purely Literary publications, the newspapers upon these lists will be found to be the VERY FIRST selection as to CIRCULATION, CHARACTER, and INFLUENCE.

REASONS FOR A LIST OF 100.

When the system was first inaugurated it was considered desirable to apply it to a list sufficiently large to give ONE PAPER TO EVERY CONSIDERABLE PLACE in the States included on the list, with a DAILY IN EACH CITY. On making up this list it was found to contain nearly one hundred papers, and in order to make it more perfect, one hundred was adopted as the number. By calculating the various prices to be paid to each paper, a fixed price per inch and per line was adopted for the whole. When the demands of our customers required the formation of other lists, we decided they should contain the same number of papers, the same relative proportion of dailies and weeklies, and be governed by the same rates. FOUR LISTS HAVE NOW BEEN FORMED on the same plan, and thus they have become known as the "LISTS OF ONE HUNDRED NEWSPAPERS."

REASONS WHY LISTS OF ONE HUNDRED SHOULD BE USED IN PREFERENCE TO A SMALLER ONE.

Many advertisers, in making a selection of newspapers to cover the territory included in one of our lists, would probably select no more than fifty papers where we have a hundred; but of the fifty selected, IF THE ADVERTISER IS WELL POSTED, and take but one in a place, it will be found by comparison with our list that at least 40 of them are included, and when we undertake to insert this advertisement for a month in our one hundred FOR AS LITTLE MONEY as he would have to pay to obtain the forty selected, we think no objection can be made to the larger list.

HOW THE IMPORTANT ADVANTAGES WE CLAIM ARE OBTAINED.

This is simply by applying the old system of yearly contracts on a large scale. An ordinary weekly paper of average circulation is in the habit of charging say $2 50 for 10 lines one month, but for $100 will sell a column of 100 lines for a whole year, with the privilege of changing the matter monthly, thus making the cost of 10 lines on the column contract less than one-fifth the regular charge. On higher priced papers the proportion remains nearly the same. The above explains the whole system. We have yearly contracts with 400 PAPERS for a fixed amount of space, with the privilege of monthly changes. We take the risk of filling the space, WE DO FILL IT, and it is consequently plain that we can execute orders for advertising at one-half the usual charges, and while making nearly full commissions, still afford to pay the publisher an additional price (according to his yearly rates) to secure the right to let out to others the space we hire, and to procure for our orders the most prominent places in the paper. The aggregate amount of the special contracts we now have is nearly ONE HUNDRED THOUSAND DOLLARS per annum.

WHY IT IS BETTER FOR AN ADVERTISER TO USE THE LISTS WE HAVE SELECTED THAN TO MAKE A SELECTION OF HIS OWN.

An advertisement cannot be taken for a paper on our plan without a previous contract between the publisher and ourselves, it is evident that the lists must be made up from our own ideas of the wants of the public. This is not an objection, but an advantage. No individual advertiser can be so well informed as to the relative value of newspapers, nor can be so frequently brought in contact with the publishers, nor receive such complete files of all the newspapers published, nor have facilities to keep them in that orderly position for reference so necessary for those who propose to become AUTHORITY, to decide which is the best paper in every place in a country so large as ours. We have COMPLETE LISTS open to the public for examination, and are in daily receipt at our office of more than 500 DIFFERENT PAPERS DAILY—more than 3,000 PER WEEK. We offer the public every facility to examine and decide whether or not our selections are judicious. IT IS AS MUCH FOR OUR INTEREST AS FOR THAT OF OUR CUSTOMERS THAT THEIR INVESTMENTS SHALL BE PROFITABLE, IN ORDER THAT THEY MAY BE INDUCED TO PATRONIZE US FURTHER. Great care is used, in making our selections, to have the papers judiciously distributed over the States so as to reach all parties alike, and particularly to have ONE PAPER IN THE SHIRE TOWN OF EVERY COUNTY.

THE POSITION OCCUPIED BY OUR ADVERTISEMENTS.

Next to having a good paper comes the importance of having a good position in it. Our contracts are made to secure for our customers a preference in this respect, the advertisement being guaranteed a position on the inside, or next to the column of reading matter under the heading of "NEW ADVERTISEMENTS," which secures the attention, and is, we think, more desirable than the special notice column. As we always send PRINTED copy set up with care, we get a better style and general appearance than other advertisements in the same paper.

HOW IT IS DONE.

As a rigid adherence to a system is the only way so complicated a matter can be managed, advertisements are sent to each list every fourth Monday, and at no other time. All necessary directions and information are printed instead of written, and thus, in a few hours, an amount of business is transacted which in the ordinary way would require days. The same advertisements go to every paper, and one postage stamp carries the whole. The contract already existing fixes the price to be charged, so no delay from correspondence occurs. The advertisements appear in the next issue of each paper, which is at once mailed to us, when it is examined, and after being checked in a book kept for that purpose, is carefully filed, that the advertiser may examine it at his leisure. As there are eighty-five weekly and FIFTEEN DAILY PAPERS on each list, a file of more than seven hundred different papers is prepared for inspection at any time within three months from date of order. If omissions or errors occur, the publishers are immediately informed; but, knowing by experience that we mean to have the work done right, very few errors occur. We send an order to one list every Monday, which, with the four we now have, just completes the circle, and gives to each week a particular list. To advertisers residing OUTSIDE New York city, and consequently unable to examine our files, we send one copy to each paper (containing advertisements marked) by express.

MONEY SAVED BY THE SYSTEM.

One item is the saving of postage stamps. We send out, say thirty different advertisements to the four hundred papers on the four lists, they all go at once with a printed letter giving necessary instructions. The cost to us is 400 postage stamps, 400 sheets of note paper, 400 envelopes, and 400 copies of the advertisements all printed on a slip of paper. Suppose each person undertook to do the business direct, and had facilities to obtain the same prices from the papers, they would each have to write or print 400 letters, 400 copies of the advertisement, direct 400 envelopes, and each pay a postage bill of $12, making an extra expense of $480 for postage alone, or $348 more than it costs us, and this sum goes neither to the advertiser nor to the publisher, but is simply wasted. No account is here taken of the extra paper, printing, and envelopes, nor the time occupied in doing the work. We mention but one item; others can be named hardly less in importance. These we save and depend upon for our profit.

THE CHEAPEST ONLY BECAUSE THE BEST.

Advertising in these lists must not be confronted with what is known as CHEAP advertising, for it is not cheap in the sense the term is usually applied. With these lists are obtained the BEST PAPERS and the BEST POSITION in those papers: the papers are well paid for their work—according to their yearly rates—and we average a profit nearly approaching full commissions. The only cheap thing about it is this—with capital and enterprise sufficient, we buy up at wholesale nearly one hundred thousand dollars worth of space in the BEST LOCAL NEWSPAPERS of the country; we can, of course, retail that space, still making a profit, at much lower rates than other parties without our facilities. So far as the price being low as applied to the mere NUMBER of papers, it is not, although seeming so. We can complete the same arrangement and be able to give one thousand papers for the same amount we now charge for four hundred, and at the same time increase our rates of profits. The price is not particularly cheap for the NUMBER of the papers, but when we consider BOTH quantity and QUALITY, it is found to be very low indeed.

A MAN COMPETENT TO JUDGE EXPLAINS THE ADVANTAGES WE HAVE, AT THE NEW YORK STATE EDITORIAL CONVENTION.

No better proof can be offered that our system cannot be competed against by others, without adopting our plan (which ORIGINATING with us, and being out of the beaten path, they are slow to do,) than the following extract from a speech by a gentleman well known to advertisers, as having had more experience, perhaps, than any other in the United States. It claims that the plan is bad for publishers (the justice of which claim, though false, we will not now discuss,) but does not place it in the light of being anything but a good arrangement for the advertiser. We quote from the Rochester, N. Y. *Daily Union*, of Aug. 13, 1867, an extract from a report of a speech made by S. M. Pettingill, Esq., (of S. M. Pettingill & Co., Advertising Agents, New York and Boston,) at the Editorial Convention of New York State Editors, holden at Penn Yan, N. Y., June 21, 1867. The words are plain and cannot be misunderstood:

"He showed the publishers that by this system of contracting they were giving lower rates than they gave their own home customers or others equally as prompt and good customers, that they were selling one portion of their paper to be used to compete with and undersbid the other columns; that the owner of the space thus sold could come right in and beat the publisher's prices and take his business away from him; that if the publishers, fully understanding this, still wished to continue so irregular and unbusiness-like a system, he (Pettingill & Co.) should, of course, cease trying to get advertising for the papers at their regular rates and go into the other system of contracting—which he could stand if the printers could."

RECAPITULATION OF ADVANTAGES SECURED.

In conclusion, we recapitulate the following as the principal reasons for using our lists as advertising mediums:

1st. You secure a better class of papers than by making your own selections.

2nd. The work is done much less than at the usual rates.

3d. A better position for advertisements is secured than could otherwise be obtained.

4th. The advertisements will be promptly inserted.

5th. They will appear in every issue of the papers.

6th. We watch the papers and see that the work is faithfully and correctly performed.

It will be evident to all that our system is not calculated for the smallest advertisers—fifty dollars being the smallest order we receive for either list of one hundred papers. But many advertisers will find that by making a systematic investment with us they will secure much greater results from their annual outlay than formerly.

Send for PRICE CARD and CATALOGUE OF THE NEWSPAPERS. Address

GEORGE P. ROWELL & CO.,
Advertising Agents, No. 40 Park Row, N.Y.

P.S.—In addition to the advantages above set forth, our Agency has every facility for transacting the ORDINARY BUSINESS of Advertising Agents in the ORDINARY WAY.

Our facilities are probably NOT EQUALLED by any similar establishment in America.

PROGRESS MACHINE WORKS.

A. & F. BROWN & CO.,

Nos. 57, 59 & 61 LEWIS STREET, between Delancey and Rivington streets,

NEW YORK.

Steam Engines,
Steam Pumps,
Power-Hoisting Machines,
Mining,
Sugar-House, and
Brewery Machinery,
Shafdings,
Pulleys and Gearings,
Presses, &c.

And all kinds of Machinery planned, designed, and made to order. Gear Cutting, Turning, Forging, Planing and Jobbing in general.

ADOLPHUS BROWN. FELIX BROWN. JOHN D. A. MENNING.

HILO, August 24, 1867.

CHARLES SCHENK, a resident of Fah-Ranagat Silver Mining District, and County Surveyor of Lincoln county, Nevada, begs leave to inform the mining public, that he is able and ready to give true and valuable information about mining property in this District.

CHARLES SCHENK, M. E.

References—Wm. A. Smith, Esq., 25 and 27 Nassau street.
Prof. Harper, New York, etc. oct12, '67:6s

JOHN GALT,

WHOLESALE DEALER IN ROOFING SLATE.

SOLE AGENT FOR THE

EAGLE SLATE COMPANY OF VERMONT,

Who produce Purple, Green and Red ROOFING SLATE. Sole Agent for New York and the West for the

CHAPMAN SLATE COMPANY OF PENNSYLVANIA,

Who produce a Superior Black or Dark Blue Slate; also Sole Agent for New York and the West for the

LEHIGH SLATE COMPANY OF PENNSYLVANIA.

GENERAL DEPOT,

Cor. Tenth Avenue and Twelfth Street, N. Y. City

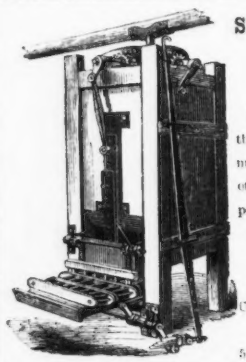
Established in 1850.

BRANCH DEPOTS:

Buffalo, Jas. W. Chatman, Terrace Square.
Chicago: James Parker, corner Franklin and Washington Streets.
Charleston, S. C.: C. J. Demorest, East Bay, near Wentworth Street.
New Orleans: J. J. Lee, 368 Magazine Street.

☞ I am prepared to give parties the prices of Slate delivered throughout the United States at the nearest Railroad Station.

Orders by mail will receive prompt attention. 17:2 xm



STAR BRICK MACHINE

The best, strongest and cheapest in the United States. We warrant it to make more and better Bricks than any other Machine now in use. It takes less power and help to run it.

Manufactured and sold by

JAMES MARTIN,

Corner North Third and Grove streets,

Jersey City, N. J.

5:4pp

GREAT PRIZE KILN.

HOFFMAN'S PATENT CIRCULAR BRICK KILN,

With perpetual operation, received, as it did at the International Exhibition in London, 1862, also at the late Exposition in Paris, one of the great Prizes. Only sixty-four in all of these Prizes were distributed, and the Inventor had the honor of receiving said Prize from the hands of the Emperor Napoleon.

In this Kiln is going on at the same time and without interruption, the BURNING READY, the GRADUAL COOLING, the GRADUAL HEATING, the SETTING of fresh and the TAKING OUT of burned and sufficiently cooled bricks, lime, cement, etc., and the FIRES ARE SUPPLIED WITH RED HOT ATMOSPHERIC AIR to support the combustion.

By the use of this Kiln two-thirds of the fuel is saved, the bricks are burnt better and much more uniform, labor is saved in working it, and any kind of fuel, as wood, coal, peat, small coal, etc., may be used. For particulars apply to 8:4:13t G. L. DETHLEFS, 213 East Broadway.

STEAM, GAS AND

WATER PIPES,

Boiler Flues,

And all kinds of

BRASS AND IRON FITTINGS, TOOLS, &c.,

For Steam and Gas-Fitters use.

☞ The best and largest assortment in the city, and at greatly reduced prices. Send for price list.

J. B. FULLER,
7.4.ps 47 Dey street, New York City

PUBLICATIONS.

American Journal of Mining,

FOR 1867.

IMPROVED AND ENLARGED.

Of the numerous sources of wealth which this country possesses, none are more important, either in richness or extent, than her minerals. These have added largely to her prosperity, and afford a profitable means of investment for capital, and an extensive field for labor. THE AMERICAN JOURNAL OF MINING is acknowledged by the public and the press to be a faithful and accurate exponent of the important interests dependent on Mining, and to more fully meet the demands of circulating valuable and reliable information, it is now increased in size to sixteen large quarto pages, thus making it the largest paper devoted to mining on this continent.

It contains: Illustrated descriptions of the latest improvements in Mechanical appliances used in opening, working and draining mines; crushing and treating the ore.

Original Papers on Geology, Metallurgy, Assaying, Chemistry, and various scientific subjects, contributed by able Scientists, in a popular style and with scientific method and exhaustiveness.

A Summary of Mining News, collected from all parts of the continent, and classified geographically and mineralogically.

Original Editorials, devoted to a review of the legislation affecting mining, to a denunciation of fraudulent speculation, to an advocacy of such measures as will advance the interests of miners or will increase public confidence in legitimate mining, and to a consideration of all other matters of value to those interested in mines.

Interesting Correspondence, giving the opinions of the public on topics of the day.

Miscellaneous Articles, culled from a selection of the leading scientific publications of Europe and America.

Reviews of New Publications on Science, Statistics, and other subjects immediately connected with the objects of the paper.

Reports of the Proceedings of the American Institute, of the German Polytechnic, and other Scientific bodies.

Statements of the formation and progress of Mining Companies, of their meetings and dividends, assessments, &c.

A comprehensive and correct Market Review of Stocks and Metals.

Reports on the Slate Trade, now rapidly increasing in importance.

Coal Trade Reports that will be found to surpass in extent and accuracy those given by any other paper, comprising accurate tables showing the shipments of Coal over the principal roads and canals during each week, and the increase or decrease as compared with the same period of the preceding year, the prices of coal, home, provincial and foreign, the rates of transportation, and the various tolls.

Reports on the Foreign Metal Markets.

Notices of Patent Claims interesting to Miners and Metallurgists, &c., and lists of Scientific Books.

The advertising columns afford a very full directory of the chief Manufacturers of Machines used in Mining, of Chemists, Assayers, Scientific Publishers, &c.

Each number of the AMERICAN JOURNAL OF MINING is printed in the best possible manner, on an excellent quality of paper, contains 16 large solid pages, two volumes a year, each containing 416 Pages, forming a valuable book of reference to all interested in Mining, Milling, Geology, Chemistry, &c.

☞ Published every Saturday at 12 o'clock M.

TERMS.

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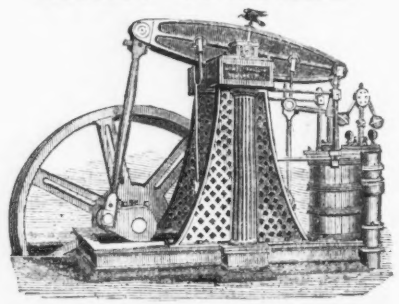

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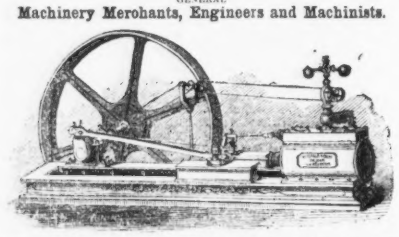

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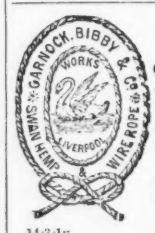

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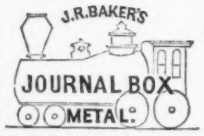

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